Basic Stabilization of Wildlife

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This manual contains basic information for the stabilization of injured and sick wildlife. It is a quick reference to assist with the treatment of wildlife while waiting for assistance from a wildlife vet or a wildlife rehabilitator.

Remember, you must have a permit from the Virginia Department of Game and Inland Fisheries to keep and rehabilitate wildlife (804-367-9588). Veterinarians without permits are allowed to treat these animals when needed, but then must turn the animal over to an individual permitted to rehabilitate that species. To care for any bird species other than a pigeon, starling or sparrow, a permit must be obtained from the U.S. Fish and Wildlife Service (413-253-8643). Wildlife Rehabilitation is not allowed in West Virginia.

It is very important to remember to get as much information as possible from the finder of the animal, such as where the animal was found and who touched it. This information is needed by the health department if there is a possible rabies exposure. The Department of Game and Inland Fisheries requires wildlife rehabilitators to know where animals were found because some species must be released back where they were found or they must euthanized to decrease the risk of them carrying a disease to a new area. Information acquired from the finder of the animal can give clues as to what may have happened to the animal and what treatment may be needed. (Attached is a sample form for the finder to fill out).

The most important thing to remember when handling wildlife is **Less is Best**.

Less handling.

Less noise.

Less light.

Less stimulation in general.

And less drugs Especially **steroids.** Studies have shown that survival rates in raptors are higher if they are not given steroids. It is now recommended that steroids never be given, even if the birds have head trauma. There is no proof they do any good, and we now know they decrease survival by increasing susceptibility to infections like aspergillus.

The only thing these animals usually need more of is heat and fluids. Keep them warm, especially the reptiles. Rehydration and heat are usually the most helpful things we can do for these animals.

If the animal is stable, you don't need to do anything but keep them in a dark, quiet, and warm environment until a rehabilitator arrives. If you do treat them, please write down what you do and give this information to the rehabilitator who picks up the animal.

Please do not feed these animals.

Feeding wildlife the wrong foods can cause severe GI distress, making what is already a bad situation much worse for the animal. Only give food when it has been recommended by a wildlife rehabilitator who is knowledgeable **with that species.**

Feeding an animal that is cold, dehydrated, in shock, or in a state of starvation can make them sick because they will not be able to digest the food and instead that food will decompose and ferment in their GI tract.

Rescued animals need to be warmed and rehydrated before putting anything into their GI tract. After that, oral feeding should be started with electrolyte solutions only. Food should not be given until you are sure the GI tract is functional. Putting food into a non functional GI tract (with ileus) will cause the food to sit and spoil inside the animal and can cause death.

*Remember wildlife can carry zoonotic diseases. Always wear gloves!

*Always remember their weapons – teeth, claws, beaks or talons. Be careful!

*Any raccoon, fox, skunk, bat, or groundhog who bites a person or pet will need to be tested for rabies. In all cases where a wild mammal has bitten a person or pet, contact your County Health Department for advice.

PHYSICAL EXAM

First give the animal a **quick** superficial exam. Determine if there are life threatening problems such as breathing difficulties, profuse bleeding, or head trauma. If not, then check for wounds, external parasites, possible fractures, and dehydration. Get a weight in gm or kg. If you have life threatening problems, take care of these before worrying about other things like treating external parasites or cleaning wounds.

Then put the animal in a dark quiet box or cage to rest while you gather materials needed for treatment, i.e. wound lavage solution, SQ fluids, antibiotics, pain meds, or bandage materials. Set up for radiographs, anesthesia, and suturing if needed.

Have everything prepared before you take the animal out again. Use proper restraint, cover their eyes with a towel to decrease stimulation, and minimize noise. Give anesthesia if needed. Gas anesthesia can be very useful for restraining birds. Work quickly and quietly, then put the animal away in a dark quiet place. Try to keep the animal where it cannot hear or see people or dogs and cats. Resist the urge to show them to everyone.

Excess stress can be more deadly to these animals than their injuries

EMERGENCIES

Breathing problems: Put in an oxygen cage. Do not try to restrain in an oxygen mask, this is too stressful for a wild animal.

Profuse bleeding: Pressure, wrap, add to bandage rather than changing soaked bandage. Severe blood loss: IV or IO fluids (If you are interested Dr. Burwell can teach your hospital how and where to give this to wildlife)

Head trauma: Minimize stress and handling. Treat with metacam. Place in a dark quiet area. If recumbent, keep head elevated. Do not scruff or grab around the neck because this can increase brain swelling. Do not give anything orally to an unconscious or demented animal.

SONGBIRDS

Disoriented due to head trauma (i.e. hit a window):

Put in a small box or a closed brown paper bag in a dark, quiet, warm area and wait 1 hour. Keep head elevated if they are recumbent

Most of these birds will come to their senses in an hour or so. Less stimulation is best for them.

If they can swallow you can give a very small oral dose of metacam (0.2-0.5 mg/kg). Do not give water to drink until they are awake and able to stand. Do not force feed.

Wounds:

Lavage with sterile IV fluids

Cover with tegaderm, do not use oily topical antibiotics which will damage the feathers. Wound hydrogels work well.

Start antibiotics – Clavamox or Baytril (dosages below)

Attacked by cats or dogs: Even if you cannot find a wound assume the skin may have been punctured somewhere and start antibiotics immediately. These infections will be deadly within 72 hours if antibiotics are not started right away. (Clavamox at 125 mg/kg BID)

Fractures:

Wings- stabilize with a wing wrap (see diagrams 1 & 2)

Legs- stabilize with a tape splint or wrap to body (see diagram 3 & 4)

If they have open fractures or have any other wounds, start antibiotics.

Baby birds: Keep warm at 80-90 degrees using a heat lamp or warm water in a rubber glove reheated in microwave. Monitor temperature.

Place bird in a small bowl or cup lined with Kleenex or paper towels.

FLUIDS FOR BIRDS:

Maintenance fluid requirements (see chart 1 for a quick way to calculate volume)

Baby birds: 100-150 ml/kg/day divided 3-6 times a day PO or SQ

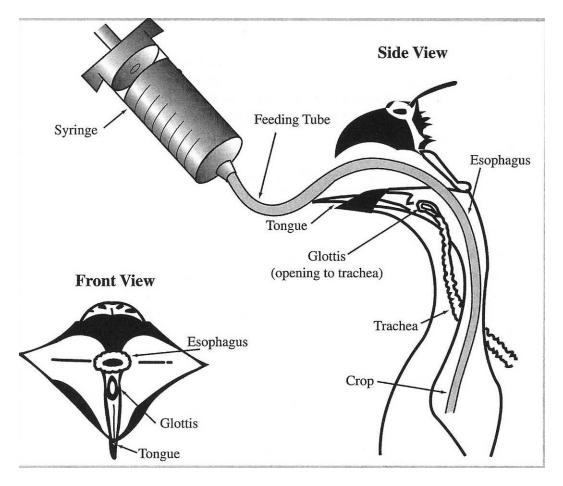
Adults: 50 ml/kg/day + deficits

Oral Fluids: Must be given by gavage tube feeding. Do not squirt fluids into a bird's

mouth because they may aspirate the fluid into their lungs. Warm oral or SQ fluids before administration.

Baby birds: Give 2-5 ml /100 gms BW PO. Start with lesser amount. Warm fluids. Repeat every 2-4 hours as needed.

Adults: Give 2-4 ml/100 gm PO. Start with the lower amount to prevent aspiration



SQ fluids

Give warm SQ fluids over the back between scapulas or in the inguinal area where the leg meets the body. Do not give dorsally at base of neck because there are air sacs there.

Volume: Give only as much as possible without making the skin excessively taught. After withdrawing the needle apply pressure over puncture site to prevent leakage.

Antibiotic Dosages for Birds

Clavamox 125 mg/kg PO q 12 hours Amoxi 100 mg/kg PO q 8 hours Trimethoprim/Sulfamethoxazole 10-50 mg/kg PO q 24 hours Baytril 10-20 mg/kg PO, SC, IM q12-24 hours (dilute if giving SQ or IM) Clindamycin 100 mg/kg PO q 24 hours

Analgesia:

Metacam 0.2-0.5 mg/kg first dose then 0.2 mg/kg BID

For suspected toxicity:

Toxiban 1-2 ml /100 gm

Atropine 0.2 mg/kg IM q 3-4 hours for cholinesterase toxicity

Waterfowl: Ducks and Geese

If suspect botulism or other toxicity and can hold head up, give Toxiban 10-20 ml/kg PO Give supportive care of SQ and oral fluids if holding head up.

Raptors

Head trauma:

Put in a dark quiet place to rest. Give metacam 0.5 mg/kg for the first dose then 0.2 mg/kg BID. Please do not give steroids.

Topical ophthalmic NSAIDS are helpful with eye trauma (hyphema, retinal detachment) **Owls frequently have eye injuries**. Common injuries are retinal tears and detachments. If only one eye is affected, the owl should recover enough sight to be released again.

Wounds:

Use gas anesthesia if needed and the bird is stable

Lavage wounds with sterile saline. Keep patient warm.

Torn skin can be replaced over clean wounds and taped in place for suturing later.

Plucking feathers around the edges of a laceration can tear the skin further. Instead cut the feathers or just wet them down and push out of the way.

Apply tegaderm over open wounds.

Do apply any ointments to wounds that are going to be sutured closed.

Start systemic antibiotics.

Broken bones:

Use gas anesthesia to get radiographs if the bird is stable.

If the patient is unstable don't stress them with radiographs.

Wing fractures: If distal to elbow use a figure 8 wrap (see diagram 1)

If fracture is in the elbow, humerus, or shoulder, apply a figure 8 wrap and wrap the wing to the body, or just wrap whole wing to body. (see diagram 2)

Leg Fractures: If you splint the leg, the splint must immobilize the joint above and the joint below the fracture. Be sure the leg splint does not cause the leg to twist abnormally. Another way to take pressure off the fracture is to suspend the bird in a box with packing peanuts or shredded paper which keeps their weight off the leg.

Start pain meds: Metacam and butorphanol

Start antibiotics if the fracture is open: Baytril or Clindamycin

Eye injuries:

Hyphema: Treat with NSAID ophthalmic drops

Metacam oral or injection if hydration status good and not in shock

Dehydration

Warm SQ fluids given over back behind scapulas or inguinal area where leg meets body Volume: Only give an amount that does not make the skin excessively taught.

Fluid requirements: Daily maintenance 50 ml/kg + deficits + losses

Antibiotics

Baytril 15 mg/kg PO, SC, IM q 24 hours (dilute if giving SC or IM)

Ceftazidime 50-100 mg/kg IM, IV q 4-8 hours

Cetiofur 50-100 mg/kg q 4-8 hours

Trimethoprim/Sulfamethoxazole 48 mg/kg PO q 24 hours

Clindamycin (for open fractures) 100-150mg/kg q 24 hours

NSAIDS

Meloxicam 0.5 mg/kg PO or IM first dose then give 0.2-0.4 mg/kg BID. Make sure they are hydrated.

Pain meds

Butorphanol 0.3-0.5 mg/kg IM q 12 hours

Misc Meds

Activated Charcoal: Toxiban 10-20 ml/kg PO

Atropine for cholinesterase inhibitor toxicity: 0.1 mg/kg q 3-4 hours

Vitamin K1 for rodenticide poisoning 2.5 mg/kg IM q 24 hours for 14 days

Mammals

Know your rabies vector species: Skunks, Raccoons, Foxes, and Bats.

Groundhogs can contract rabies from raccoons, foxes, and skunks that share their borrows. (Remember any mammal, even opossums, can contract rabies).

It is extremely important to get contact information from the finder of these animals in case the animal is found to be rabid. Contact information should be taken from all good Samaritans who bring in wildlife. If any of these species bit or scratched a human or pet, contact your local Health Department for advice. (This applies even is the person or pet is currently vaccinated for rabies)

Do not let anyone who is not vaccinated for rabies touch these species.

Always wear gloves.

Orphan baby mammals

Rewarm: Use water bottles or heat lamp. Keep at 80-90 degrees. Watch temp: babies can overheat if they can't move away from the heat source.

Rehydrate SQ: 80-100 ml/kg divided into three doses daily (see chart 1 for a quick way to calculate volume)

If hydrated and warm you can start oral electroytes (Pedialyte)

Do not immediately start formula. If the baby is cold or dehydrated, feeding it can cause more harm than good. Also, giving the wrong formula can cause problems. Each species of orphan needs a different formula. If you have fed them the wrong formula and the rehabilitator has to switch them to the correct formula, this change can cause diarrhea which is stressful and sometimes fatal to these babies.

Once the baby is warm and rehydrated, oral electrolytes are given before any formula is started. Pedialyte is a good oral electrolyte solution for use in baby mammals. Volume per feeding: 5% BW in grams (for 100 gm give .05 X 100 = 5 ml). Stimulate to urinate and defecate at every feeding. Feed every about every 3 hours.

Attacks by cats or dogs: Always start amoxi or clavamox immediately (except in cottontails)

Dose at usual mammal dosages

Adult mammals

Treat similarly to cats

Anesthesia may be needed for treatment.

The ketamine, medetomidine, butorphanol combination works well at the cat dosage for raccoons, foxes, opossums, skunks.

Bunnies with torn skin or degloving injuries:

Lavage the area with sterile saline, Do not try to clip the hair (this is impossible and very stressful to the rabbit) Never apply disinfectant solutions or oily topical medications to fresh wounds since this will interfere with primary healing Glue the skin back over the clean wound at the skin edges with Tissuemend II – this is an absorbable glue so it doesn't matter if some gets under the skin. Start Baytril or Trimeth/Sulfa (dosages below)

Antibiotic dosages for mammals:

Baytril 5 mg/kg PO, SQ, IM q 12-24 hours Amoxi 22 mg/kg PO, SQ q 12 hours Clavamox 13.75 mg/kg PO q 12 hours Trimethoprim/Sulfamethoxazole 30 mg/kg PO q12 hours Do not use oral Amoxi or Clavamox in rabbits and rodents

Pain Medication Meloxicam 0.1-0.2 mg/kg q 24 hours Buprenex 0.01-0.03 mg/kg (higher in rodents)

Anxiolytics Midazolam 0.3-1.0 mg/kg IM or SQ

Anesthesia

For healthy aggressive fox, raccoon, skunk, opossum: Combine Butorphanol 0.45 mg/kg, + Dexdormitor 0.045 mg/kg, + Ketamine 4.5 mg/kg IM

Depending on the condition of the animal, decrease the dosages. Use pain control. Rabbits, groundhogs, squirrels: Midazolam 1-2 mg/kg then mask with sevo or iso

Use pain control Buprenex .05-.1 mg/kg

Beaver: Dexdormitor 0.03 mg/kg + Ketamine 3-4 mg/kg IM

Deer

Currently, adult deer (older than 6 mos) are not allowed to be rehabilitated in Virginia. Adult deer with fractures are rarely successfully rehabilitated. They do not tolerate captivity and euthanasia is usually required.

Fawns: Before beginning treatment, make sure you have a rehabilitator who will take this fawn. Some rehabbers are so overwhelmed with caring for a large number of healthy orphans and cannot take fawns with injuries or fractures. Raising fawns requires a lot of money, space, and time.

Because of concerns for the spread of Chronic Wasting Disease, orphan or injured fawns found within the Containment Area in Frederick, Clarke, Warren, and Shenandoah Counties are not allowed to be rehabilitated and are required by DGIF to be euthanized. Contact DGIF for more information. The Virginia Department of Game and Inland Fisheries (DGIF) has strict rules regarding the movement of deer or deer parts in the Containment Area. Stay educated about the current status of CWD and the Containment Area in Virginia. DGIF is changing its rules regarding the movement of deer as this disease spreads.

Please remember when caring for wild mammals: It is important not to let these animals become too friendly or accustomed to people. They are not allowed to be kept as pets without a permit, and if they become friendly and then are let go, they will not survive long in the wild. Friendly wild animals are likely to be killed either because they become pests, or because someone will mistake their friendliness for rabies.

Reptiles

Turtles hit by cars, lawnmowers, etc.

Lavage the wounds with sterile saline. Do not apply oil based topical antibiotics to wounds of the shell because these substances should not be put inside a broken bone.

Align the pieces of shell as well as possible then wrap the shell with vet wrap or tape to stabilize it.

Wrap broken legs into the shell. When they try to walk on a broken leg, their fractured bones often puncture the skin and then you have a more serious open fracture.

Start Antibiotics (dosages below)



Heat: Keep at 80-90 degrees

Maintenance fluids: 10-30 ml/kg/day + replace deficits (see chart 1 but halve the weight for reptiles to get the correct fluid amount)

Site for SQ fluids: skin fold dorsal/cranial to back leg

Some references advise avoiding LRS in turtles since they develop lactic acidosis in most stressful situations. Normasol R is recommended.

Many turtles will rehydrate themselves if allowed to soak in some shallow warm water



Administer SQ fluids to turtles dorsal/cranial to rear legs.

Snakes

Wounds: Lavage with sterile saline

Cover with tegaderm Start antibiotics Due to reptile renal portal circulation, it is recommended that medications metabolized by the kidneys be administered only in the front legs, not the rear legs, but there is no research to support this.

Reptile Medications

Antibiotics

Ceftazidime 20 mg/kg SQ, IM, IV q 72 hours Ceftiofur 2.2 mg/kg IM q 48 hours snakes

5.0 mg/kg q 24 hours turtles

Baytril 10 mg/kg SC or IM q 48 hours. Irritating: best to dilute 50% with saline

NSAIDS

Meloxicam 0.1-0.2 mg/kg PO q 24 hours

Pain meds:

Buprenorphine 0.01-0.02 mg/kg IM q 24 hours Hydromorphone turtles: 0.3-0.5 mg/kg SQ

Meloxicam 0.1-0.2 mg/kg q 24 hr for maximum of 4 doages. Make sure hydration is good.

Anesthesia

Ketamine 10 mg/kg + medetomidine 0.1-0.3 mg/kg IM + Morphine 1.5 mg/kg Wait 45 minutes for maximum effect. Remember their metabolism is temperature dependent. Ketamine 20-30 mg/kg + Midazolam 1-2 mg/kg (immobilization but no pain control) They can be intubated and maintained on isoflurane

Useful Products:

Capstar can be dissolved in sterile saline or water and used to kill maggots topically. Ivermectin can be used the same way, but do not overdose the animal - max 0.6 mg/kg. Never use ivermectin in a turtle.

Screw worm spray (permethrin) works well for maggots in avascular areas.

Tegaderm is a good covering for wounds that sticks to hair, feathers, skin and scales, but not to the wounds. It provides a barrier that keeps the wound moist and keeps contaminants out.

Hydrogels are excellent water soluble wound coverings to use under tegaderm.

Tissuemend II is an absorbable tissue glue that can be used to close small wounds

Helpful phone numbers:

Wildlife Veterinary Care

Dr. Belinda Burwell Certified wildlife rehabilitator and veterinarian 540-664-9494 Wildlife Center of Virginia 540-942-9453 Wildlife Rescue League 703-440-0800

Animal Control:

Frederick County: 540-662-6162 Clarke County: 540-955-1234 Warren County: 540-635-4734

Local Conservation Police Officers (Game Wardens): 540-248-9360

After hours 804-367-1258

Frederick County: 540-662-6162 Clarke County: 540-955-1234

Department of Game and Inland Fisheries:

24 hours Dispatch 804-367-1258

Wildlife Conflict Helpline 855-571-9003 Crimes or wildlife violations: 800-237-5712

Permits 804-367-9588

U.S Fish and Wildlife Service:

Permits 413-253-8643

Law Enforcement 540-898-1755

Wildlife Veterinary Care PO Box 288 Millwood, VA 22646 540-664-9494

whalle admission Form	Date	11me
Name	Phone	
Address	Email	
	- -	
Species:	Approx. Age:	
Date and Time found:		
Reason for Rescue:		
Where was the animal found? Please be as s	pecific as possible.	
Please describe why the animal needed to be broken leg, in a yard with dogs, cat brought		
How long have you had the animal?		
Was it fed, and if it was, what was it given a	nd did it eat or drink?	
Was anyone bitten or scratched by the anima	al? If so, who?	
Was any medical care given? If so, what wa	as done?	

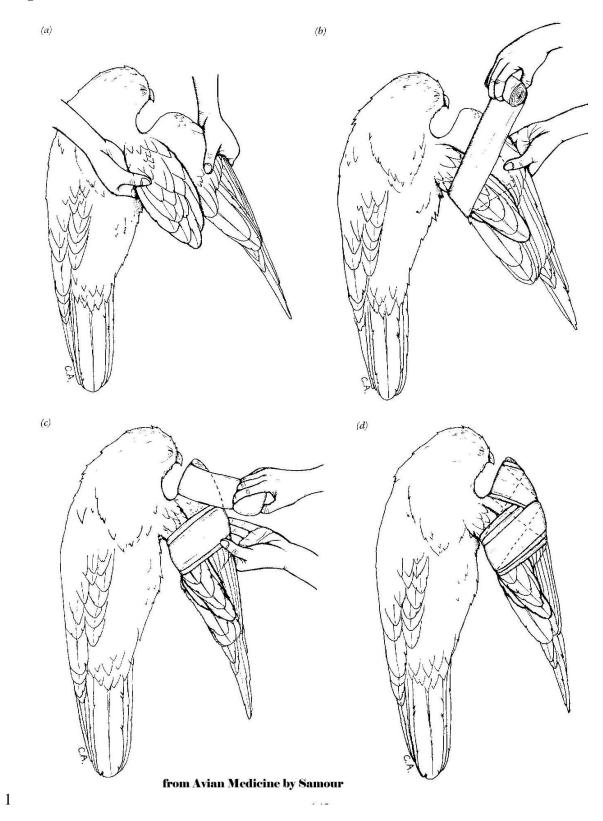
FLUID THERAPY CHART

(Maintenance and Replacement)

ANIMAL WEIGHTS: 1 to 10 grams	- 100	7.	*	-						- 100 W
Incoming weight (in grams)	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10
Corrected body weight (in grams)	1.1	2.2	3.3	4.4	5.5	6.6	7.7	8.8	9.9	11
Day 1 (cc per dose*)	0.04	0.07	0.11	0.14	0.18	0.21	0.25	0.28	0.32	0.35
Day 2 (cc per dose*)	0.03	0.05	0.08	0.11	0.13	0.16	0.19	0.21	0.24	0.27
Day 3 (cc per dose*)	0.03	0.05	0.08	0.11	0.13	0.16	0.19	0.21	0.24	0.27
Day 4 or maintenance only (cc per dose*)	0.02	0.04	0.06	0.07	0.09	0.11	0.13	0.15	0.17	0.18
ANIMAL WEIGHTS: 10 to 100 grams										
Incoming weight (in grams)	10	20	30	40	50	60	70	80	90	100
Corrected body weight (in grams)	11	22	33	44	44	66	77	88	99	110
Day 1 (cc per dose*)	0.35	0.7	1.1	1.4	1.8	2.1	2.5	2.8	3.2	3.5
Day 2 (cc per dose*)	0.27	0.5	0.8	1.1	1.3	1.6	1.9	2.1	2.4	2.7
Day 3 (cc per dose*)	0.27	0.5	0.8	1.1	1.3	1.6	1.9	2.1	2.4	2.7
Day 4 or maintenance only (cc per dose*)	0.18	0.4	0.6	0.7	0.9	1.1	1.3	I.5	1.7	1.8
ANIMAL WEIGHTS: 100 to 1000 grams										
Incoming body weight (in grams)	100	200	300	400	500	600	700	800	900	1000
Corrected body weight (in grams)	110	220	330	440	550	660	770	880	990	1100
Day 1 (cc per dose*)	3.5	7.0	10.5	14.0	17.5	21.0	24.5	28.0	31.5	35.0
Day 2 (cc per dose*)	2.7	5.3	8.0	10.7	13.3	16.0	18.7	21.3	24.0	26.7
Day 3 (cc per dose*)	2.7	5.3	8.0	10.7	13.3	16.0	18.7	21.3	24.0	26.7
Day 4 or maintenance only (cc per dose*)	1.8	3.7	5.5	7.3	9.2	11.0	12.8	14.7	16.5	18.3

^{*} Administer three doses per day

 $\hbox{NOTE:}$ When calculating the fluid needs of turtles and tortoises, use half their body weight as the incoming weight.



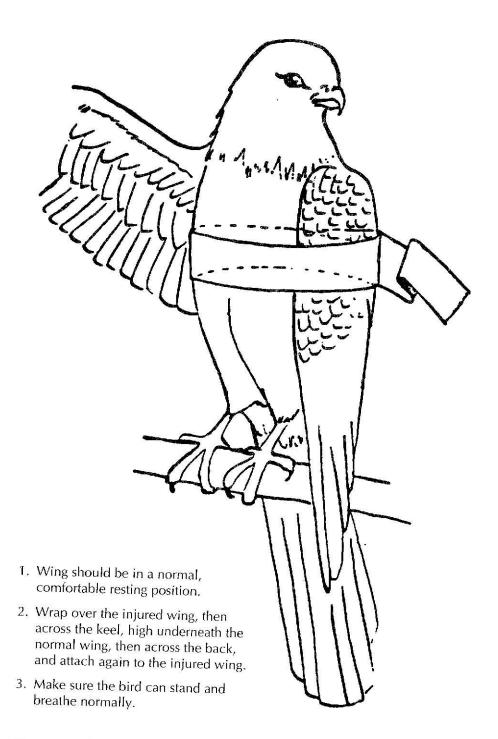


Figure 2. Body wrap — temporary immobilization of fractured wing.

Avian Bandaging techniques by Barbara Talbot and Gail Buhl

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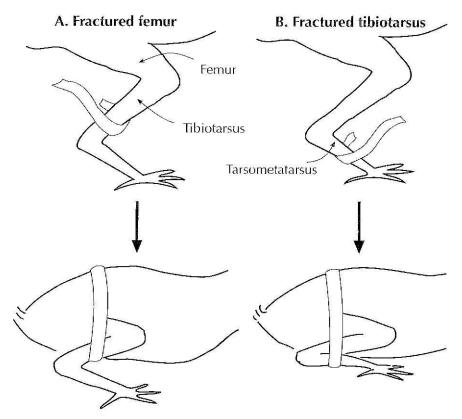


Figure 4. Application of tape leg bandages for fractures of the femur (A) and tibiotarsus (B).

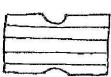
Fractured femur. The tape bandage is begun with the sticky side of the tape facing the bird. A loop of tape is made around the tibiotarsus, with the tape going under and behind the bone (medial side) and back up to the tape on the outside (lateral side) of the bone. The tibiotarsus is then pulled up against the body, tape is extended up over the back of the bird, around the body and abdomen, over both the tibiotarsus and the femur, and ending at a point over the spine of the bird (Figure 4A).

Fractured tibiotarsus. The tape bandage is begun with the sticky side of the tape facing the bird. A loop of tape is made around the tarsometatarsus in the same manner as used above on the tibiotarsus. The tarsometatarsus is then pulled up against the tibiotarsus and tape is extended over both bones and up over the back of the bird. The bandage is completed as above. The tape goes over back, around abdomen, and over tarsometatarsus, tibiotarsus, and femur to a point at center of the back of the bird (Figure 4B).

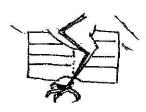
Splinting techniques for nestlings by Lessie Davis



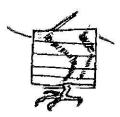
Masking tape works well. Do not use cloth tape.



1. Layer tape and make it unsticky.



2. Notch the bandage and lay leg on top in a comfortable perching position.



3. Fold bandage and secure to leg.



4. Trim and round edges.



5. Optional: place small staples as close to leg as possible. Cover with tape.

Figure 5. Bird leg splints.

Avian Bandaging techniques by Talbot and Buhl