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 the Blue Ridge Wildlife Center or a wildlife rehabilitator to pick up an animal.

Remember, you must have a permit from the Virginia Department of Game and Inland Fisheries to keep and rehabilitate wildlife. 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.

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 euthanized to decrease the risk of them carrying a disease to a new area. Also, this information can give clues as to what may have happened to the animal and what treatment it may need. (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 it will ferment in their GI tract.

These 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!**

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 or 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 is can be very useful for restraining birds. Work quickly and quietly, then put the animal away again. Try to keep the animal where it cannot hear people or hear or see dogs or 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 dark quiet area. If recumbent, keep head elevated. Oxygen can decrease brain swelling. Do not scruff or grab around the neck as this can increase brain swelling.

SONG BIRDS

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.
Keep head elevated if they are recumbent
Most of these birds will come to their senses in an hour or so. There are no drugs you can give to help them. Less stimulation is best.
If they can swallow you can give a very small oral dose of metacam (0.1 mg/kg)

Wounds:
Lavage with sterile IV fluids
Cover with tegaderm, do not use oily topical anitibiotics which will damage the feathers. Wound hydrogels work well.
Start antibiotics – Clavamox or Baytril

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.

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

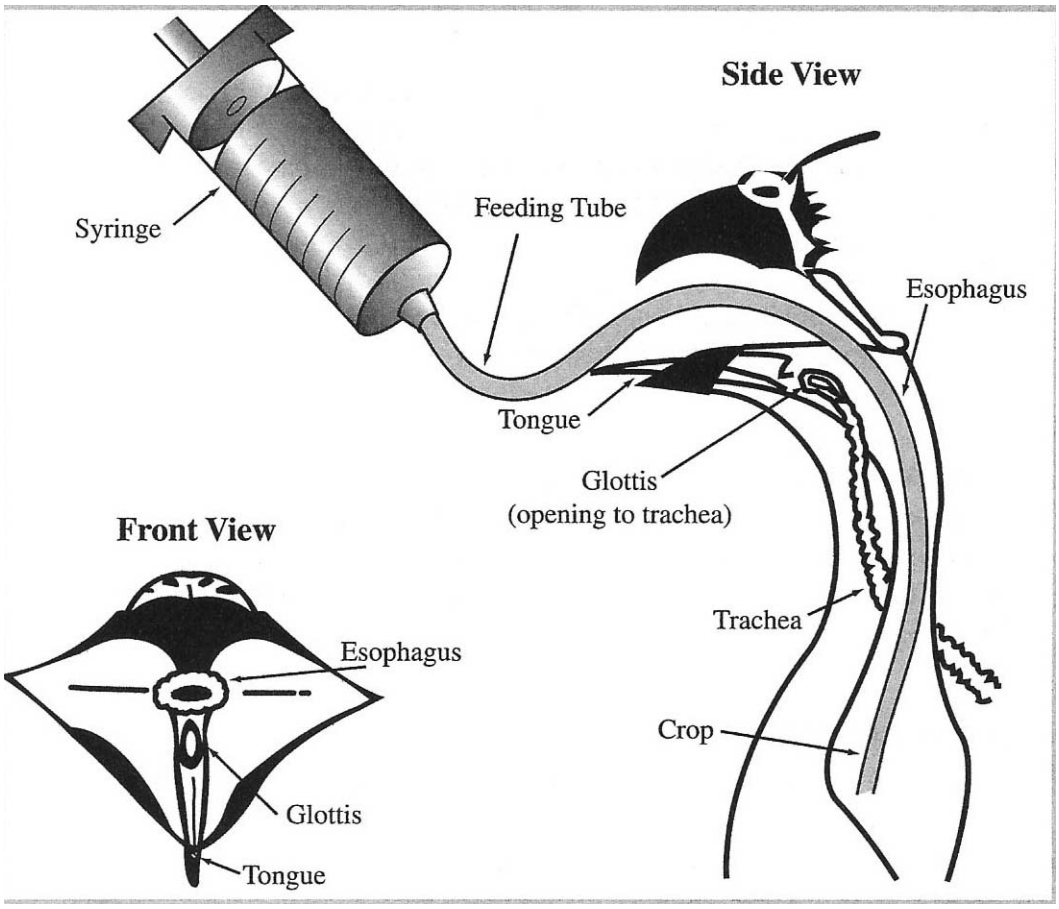
Legs- stabilize with a tape splint or wrap to body (see diagram 3 & 4)

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. Watch temp.
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 at one time. Start with lesser amount. Warm fluids
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)

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

Give Toxiban 10-20 ml/kg PO and supportive care of SQ and oral fluids

Raptors

Head trauma:
Put in a dark quiet place to rest. Give metacam 0.1 mg/kg. Please do not give steroids.
Topical ophthalmic NSAIDS are helpful with eye trauma (hyphema, retinal detachment)

Wounds:
Use gas anesthesia if needed and the bird is stable
Lavage wounds with sterile saline
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.
Start 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: A leg splint will not be enough. You should suspend the bird in a box filled halfway 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

Eye injuries:
Hyphema: Treat with BNP HC or NSAID ophthalmic drops
Metacam oral or injection if hydration status good and not in shock

Dehydration
Warm SQ fluids given over back between 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 (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 (good for open fractures) 150mg/kg q 24 hours

NSAIDS
Meloxicam 0.1-0.2 mg/kg PO or IM usually given SID but duration of effect is in question

Pain meds
Butorphanol 0.5-0.75 mg/kg IM q 12 hours or 0.5-2.0 mg/kg IM q 24 hours
Buprenorphine 0.1 mg/kg IM BID (effectiveness in birds is disputed)

Misc Meds
Activated Charcoal: Toxiban 10-20 ml/kg PO
Atropine for cholinesterase inhibitor toxicity: 0.1 mg/kg q 3-4 hours

Mammals

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

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

Antibiotic dosages for mammals:

Trimethoprim/Sulfamethoxazole 30 mg/kg PO q12 hours

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

Do not use oral Amoxi or Clavamox in rabbits or rodents

Deer

Adult deer with fractures are rarely successfully rehabilitated. Euthanasia is usually required.

Before investing a lot of time, make sure you have a rehabilitator who will take the animal.

Fawns: Again, make sure you have a rehabilitator who will take this fawn. Because of concerns for the spread of chronic wasting disease, fawns found in Frederick County should not leave Frederick County because they may carry this disease and spread it to new areas. Raising fawns requires a lot of money, space, and time. The few rehablitators who will take them in become full very quickly. Some are selective, only taking fawns that don't have serious injuries or fractures.

Stay educated about the current status of CWD and the surveillance area in Virginia. DGIF is changing their rules regarding the movement of deer as this disease moves closer to Frederick County.

Please remember: It is important not to let wild animals become too accustomed to or friendly toward 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 in 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

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: dorsal 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 to rear legs.

Snakes

Wounds: Lavage with sterile saline
Cover with tegaderm
Start antibiotics

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 5 mg/kg SC or IM q 24 hours –irritating – best to dilute 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 – best for pain relief in reptiles
Butorphanol 0.4-1.0 mg/kg SC , IM length of pain relief unknown – there is currently a debate whether this drug works at all in reptiles.

Anesthesia

Ketamine 10 mg/kg + medetomidine 0.1-0.3 mg/kg IM
Ketamine 10-30 mg/kg + butorphanol 0.5-1.5 mg/kg IM
They can be intubated and maintained on isoflurane

Useful Products:

Capstar can be used in mammals for maggots but will have no effect in avascular areas.
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 III is an absorbable tissue glue that can be used to close small wounds

Helpful phone numbers:

Blue Ridge Wildlife Center 540-837-9000

Dr. Belinda Burwell Certified wildlife rehabilitator and veterinarian 540-664-9494

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
Crimes or wildlife violations: 800-237-5712

U.S Fish and Wildlife Service:
Law Enforcement 540-898-1755

Blue Ridge Wildlife Center
PO Box 326
Millwood, VA 22646
540-837-9000

Wildlife admission Form Date_____ Time_____

Name_____ Phone_____

Address_____ Email_____

_____

_____

Species:_____ Approx. Age:_____

Date and Time found:_____

Reason for Rescue:_____

Where was the animal found? Please be as specific as possible.

Please describe why the animal needed to be rescued and the circumstances: (Can't fly, in a yard with dogs, cat brought home, next to the road, etc.)

How long have you had the animal?

Was it fed, and if it was, what was it given and did it eat or drink?

Was anyone bitten or scratched by the animal? If so, who?

Was any medical care given? If so, what was done?

FLUID THERAPY CHART

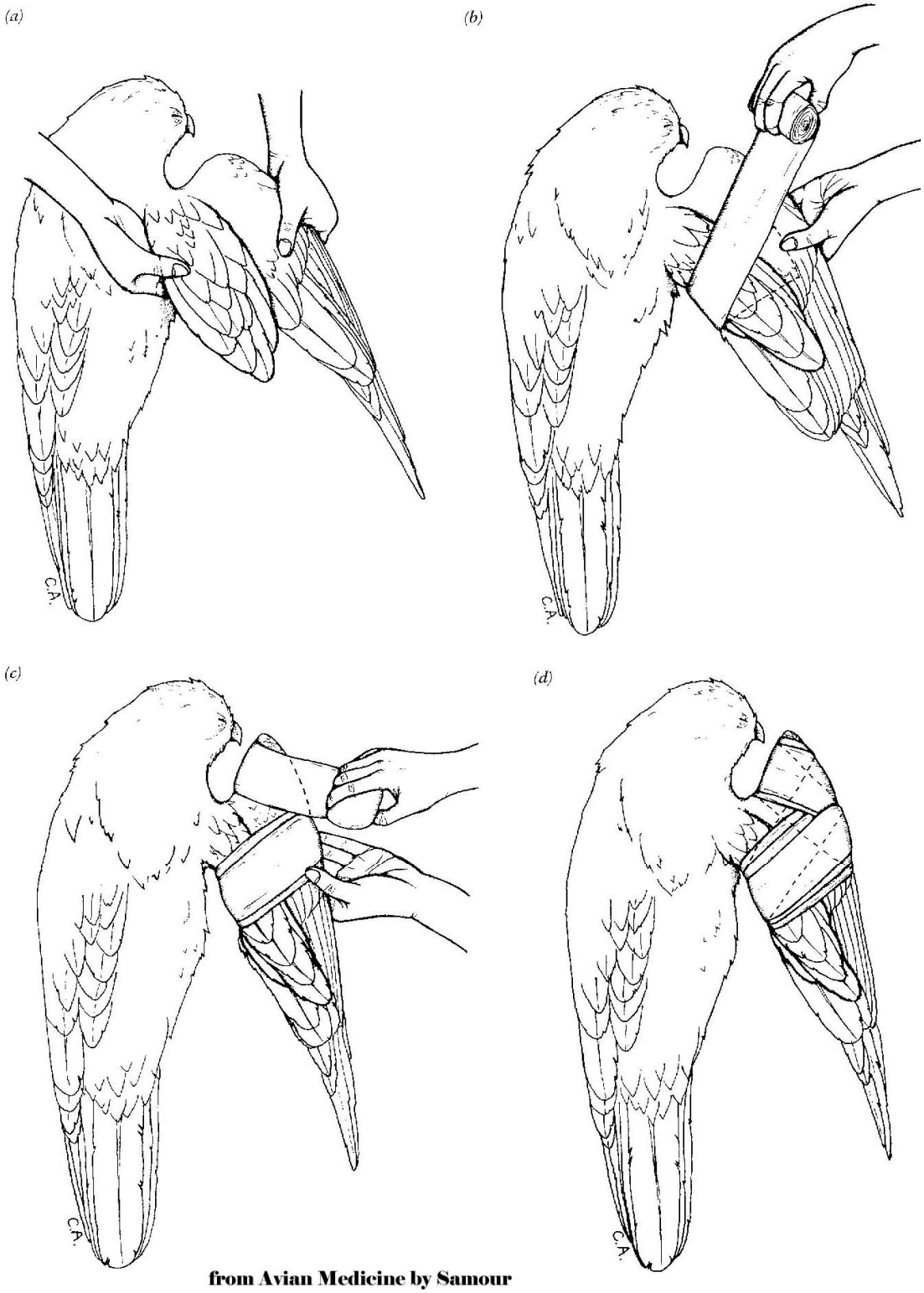
(Maintenance and Replacement)

ANIMAL WEIGHTS: 1 to 10 grams										
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	1.5	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

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

Diagram
1



from Avian Medicine by Samour

Diagram
2

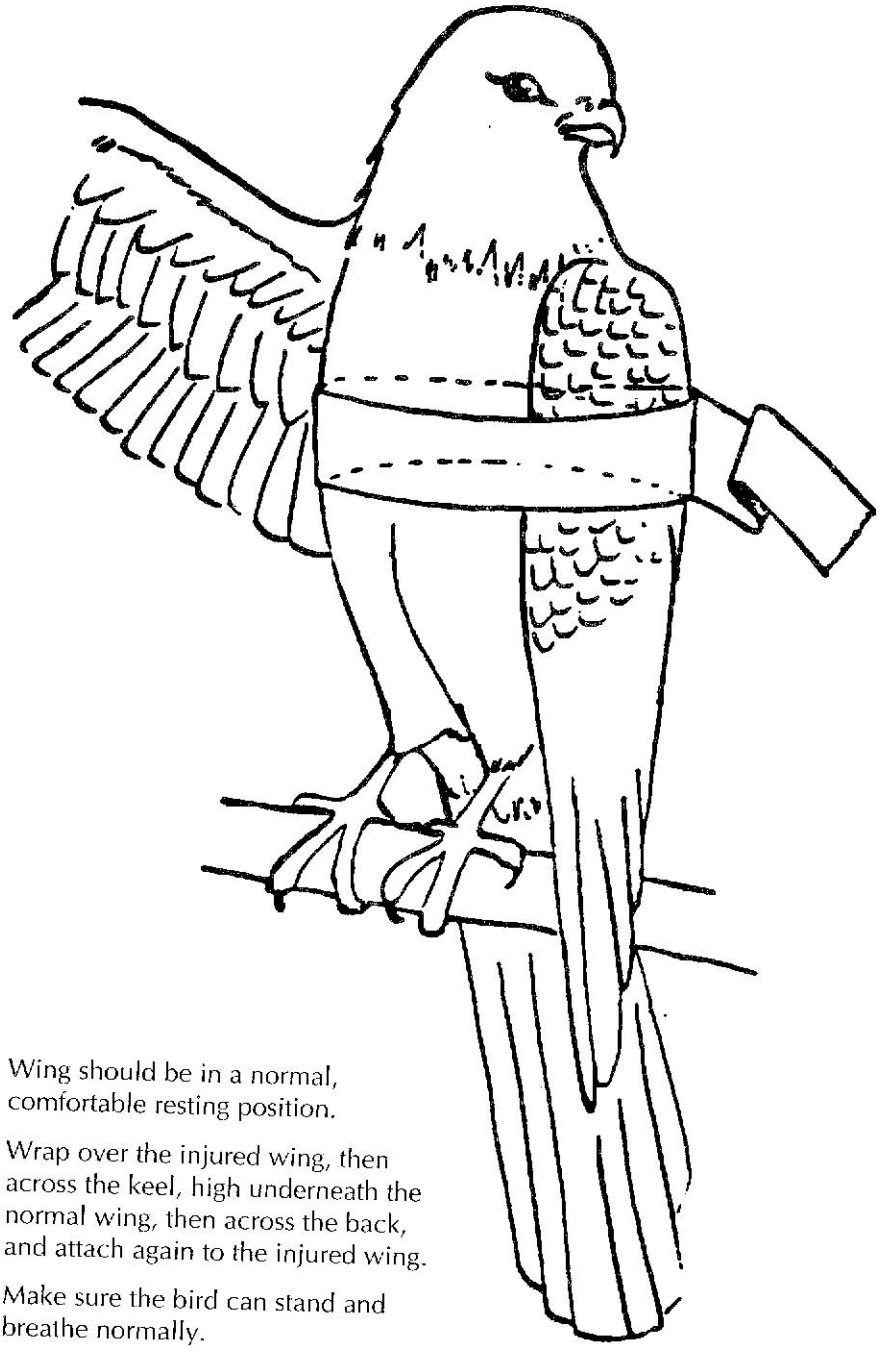


Figure 2. Body wrap — temporary immobilization of fractured wing.

Avian Bandaging techniques by Barbara Talbot and Gail Buhl

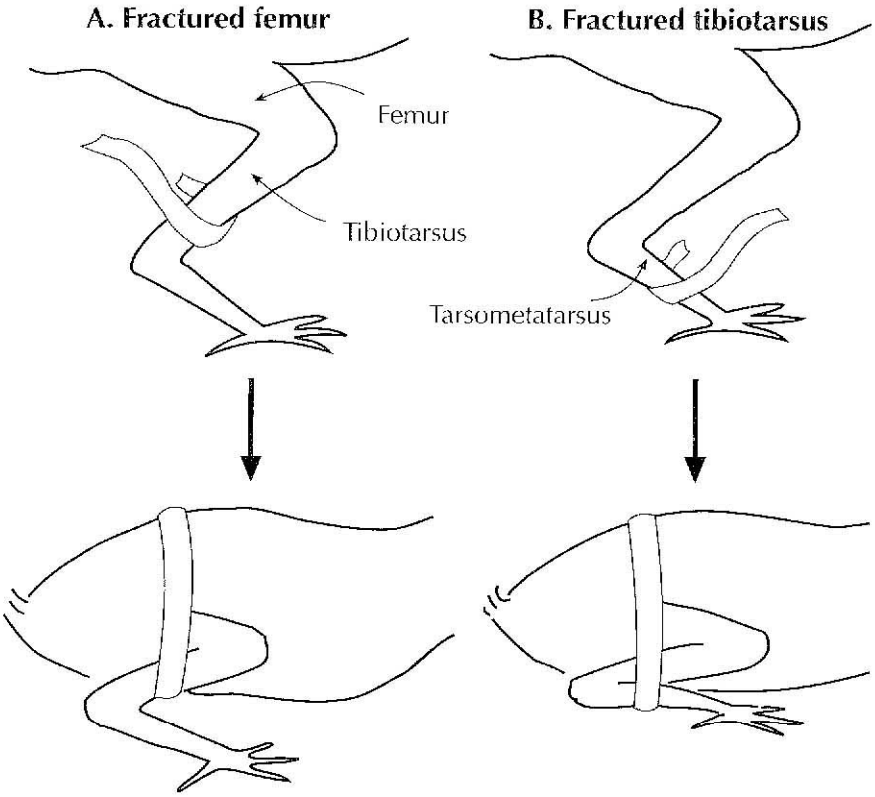
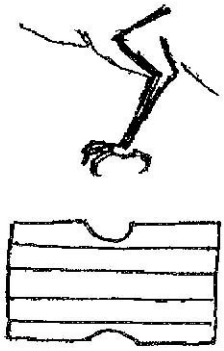


Figure 4. Application of tape leg bandages for fractures of the femur (A) and tibiotarsus (B).

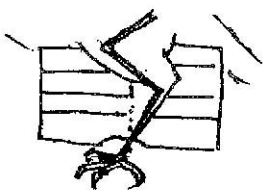
Fractured femur. The tape bandage is begun with the sticky side of the tape facing the bird. A loop of tape is made around the tibiotarsus, with the tape going under and behind the bone (medial side) and back up to the tape on the outside (lateral side) of the bone. The tibiotarsus is then pulled up 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).

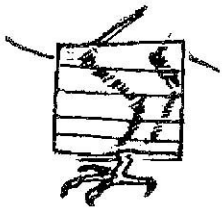
Fractured tibiotarsus. The tape bandage is begun with the sticky side of the tape facing the bird. A loop of tape is made around the tarsometatarsus in the same manner as used above on the tibiotarsus. The tarsometatarsus is then pulled up against the tibiotarsus and tape is extended over both bones 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.



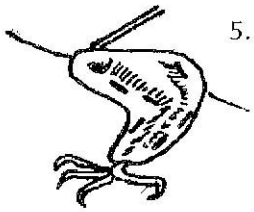


1. Layer tape and make it unsticky.

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