

NEWSLETTER FOR WILDLIFE REHABILITATORS OF NORTH CAROLINA

Volume 15

Jan 2004

A quarterly newsletter produced by the Wildlife Rehabilitators of North Carolina (WRNC). WRNC's mission is to share information and knowledge about wildlife rehabilitation for the benefit of native wildlife. For comments or questions, write to: WRNC, 2542 Weymoth Rd, Winston-Salem, NC 27103.

Continuing Education

- Are you registered? Second annual symposium is Jan. 31st and Feb 1st. More preview information is on pages 2 and 3.
- Upcoming Carolina Raptor Center's Raptor Rehabilitation Seminars; next one is Feb 28th and 29th. For details see page 4.
- Wildlife Rehab, Inc. will hold their next 11-week wildlife rehabilitation class starting Feb. 2004 at Forsyth Technical Community College on Tuesdays from 6-9 pm. For more information contact Carla Johnson by email at cmjohnso@wfubmc.edu
- Like to travel? IWRC upcoming classes and locations:

Date	Course	Location
Jan 17, 2004	1AB: Basic Wildlife Rehabilitation	Holyoke, MA
Feb 22, 2004	4BB: Initial Wildlife Care	Dover, DE
Mar 27, 2004	1AB: Basic Wildlife Rehabilitation	Durham, NH
Apr 17, 2004	1AB: Basic Wildlife Rehabilitation	Walnut Creek, CA

The above and more info is available at <http://www.iwrc-online.org/training/training.cfm>

- Need some sunshine? NWRC 2004 symposium will be in Orlando, FL, March 2-6. More info at: www.nwrawildlife.org

Disclaimer

The opinions, techniques, and recommendations expressed in the articles of this newsletter are those of the author(s) and do not imply endorsement by WRNC.

Our Symposium is Even Bigger This Year

by Jean Chamberlain

There are many great activities to attend at the symposium in addition to the exciting presentations that are being offered. There are even more things to do this year than last year.

Join us at the Ice Breaker Friday evening, Jan 30th, from 7 – 9 pm. Michael R. Loomis, Chief Veterinarian at the NC Zoo, has great photos to show on ‘The NC Zoo's Elephant Conservation Project in Cameroon.’ This is a good opportunity to meet and exchange ideas with your fellow rehabilitators from around the state. Snacks and drinks are provided.

Physical exam workshops are being held several times during the weekend. These feature a comprehensive video demonstrating exams for both a live animal and a bird. A practice session directed by a veterinarian using carcasses follows the video. This is a great chance to practice doing an exam step by step.

This year there are a variety of exhibits from both vendors and non-profits. Vendors offer rehabilitation supplies, equipment, and formulas. The sales representatives are available to answer questions. Purchase your supplies and be ready for baby season.

There are more tours of the Valerie Schindler Rehabilitation center. Tours are offered several times on Saturday and Sunday.

WRNC's new half-day refresher training course is offered for the first time at this Symposium. This course is a comprehensive review of the basic care of opossums, squirrels, and cottontails, basic medical procedures, and the most common zoonotic diseases. The course is intended for current rehabilitators who want to bring their knowledge and skills up to date. The course is held on Saturday afternoon and repeated Sunday morning. It has been prepared by some of our most experienced rehabilitators and teachers.

Join us January 31st for this great opportunity to refresh your skills, meet old friends (and new ones), and become better prepared for the coming year.

Don't forget to VOTE!

**Vote for new board members at the symposium, Jan 31-Feb 1 or file your absentee ballot by Jan 20th.
Bios are on page 9. Absentee ballot is on page 10.**

Migratory Bird Rehabilitation Permits

by Jean Chamberlain

US Fish & Wildlife has created a new permit category that specifically authorizes migratory bird rehabilitation. This ruling went into effect on November 26,2003. If you currently hold a federal permit, it remains valid until its expiration date. There are a number of significant changes including: requiring a fee (\$25) for the permit, changing the length of the permit from 3 years to 5 years, allowing anyone to transport an injured/sick bird to a licensed rehabilitator, and changing the time birds may be held without needing additional authorization from 90 days to 180 days.

For more information and application forms go to <http://forms.fws.gov/default.cfm> on the Internet or contact the U.S. Fish and Wildlife Service, Migratory Bird Permit Office, P.O. Box 49208, Atlanta, GA 30359 (tel. 404-679-7070).

WRNC Offers a Refresher Course

by Jean Chamberlain

WRNC is offering a refresher course for the first time at the symposium. The course is being prepared by some of our most experienced rehabilitators and teachers. It is being held Saturday afternoon and then repeated Sunday morning. All attendees are urged to attend one of these half-day sessions.

The sessions are comprehensive, reviewing nearly everything that is usually taught in a full rehabilitation course and more. The student is expected to have some rehabilitation experience. This is not a course for a beginner, as it will be too comprehensive and fast paced for a beginner to grasp this much material in a half-day session.

We are covering squirrels and opossums. Do you know at what age a squirrel can be introduced into a cage with others? Should liver be added to cat chow to feed opossums? We are covering cottontails. Do you know what to do when you receive a bunny that has been fed cow's milk or how to treat a bunny with diarrhea? How should you pick up a cottontail properly?

Zoonoses and basic medical topics are also being covered. Do you know the most common route of transmission of zoonotic disease? How about how to treat dehydration? hypothermia?

Come to our refresher class. It addresses these questions and much more.

The course is designed for:

- Those who are experienced, but have never taken a full course in wildlife rehabilitation and wish to fill in any gaps in their knowledge
- Those who are experienced in some species/areas but would like to learn about others
- Those who's training in wildlife rehabilitation was several years ago and who would like to learn about the current techniques and methods
- Those who would like a comprehensive review of basic wildlife rehabilitation procedures

Email confusion

Your responsive board member Mathias Engelmann would love to answer your emails, but will not receive them if you send them to the wrong email address. Mathias' surname has two "n's" at the end, so his email is

mathiasengelmann@birdsofprey.org

From the editor's desk

This newsletter is your tool for reaching everyone else in WRNC. Please feel free to submit comments, corrections, announcements and submissions for future newsletters to Sally Davis at wekaterrapin@hotmail.com or by phone at (919) 462-3249. **Next editorial deadline is Wednesday, Mar 17th, St. Patrick's Day.**

Directory updates

Have you moved? Has your email address changed? Is your phone number listed incorrectly in the directory? Send updates to Carla Johnson at wildlfeed2@aol.com

Kathy Lillard's new email address:
hobbiedoo@earthlink.net

Karen Thornton: no email, accepts: sm. mammals only

Upcoming Carolina Raptor Center's Raptor Rehabilitation Seminars (first offered in 1993)

Spring 2004

Feb 28th & 29th, 2004

- Basic
- Beaks & Talons
 - Supplies and Equipment
 - Cage construction
 - Tail wraps
- Advanced
- Imping Feathers
 - Physical Therapy & Exercise
 - Evaluating Radiographs
 - Evaluating for Euthanasia

Fall 2004 (repeat from 2002)

Sep 25th & 26th, 2004

- Basic
- Anatomy & Physical Examination
 - Indoor Housing & Outdoor Cage Designs
 - Diet
- Advanced
- Wound Management
 - Eye exam, injuries, and treatments
 - Release evaluation

Spring 2005 (repeat from 2003)

TBD

- Basic
- Identification
 - Handling
 - Physical Examination
- Advanced
- Hematology & Parasitology
 - Common injuries & Treatments
 - Basic Bandaging Techniques

For more information, please contact Mathias Engelmann by email at:
mathiasengelmann@birdsofprey.org

TIP

Hawk in Warehouse?

To get a hawk to leave a warehouse place large potted or artificial plants in the doorway.

Betty O'Leary
Carolina Raptor Center

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Physical Examination of a Raptor

(part two of two)

by Mathias Engelmann, Carolina Raptor Center

BODY

- Examine the chest area and keel. The amount of muscle will be some indication of how successful the bird has been hunting recently and the condition of the flight muscles. Assign a keel score, “1” represents an extremely emaciated bird and “5” represents an extremely well muscled or obese bird (see keel chart). Fledgling-aged birds usually have a keel score of 3, whereas most healthy adult birds should have a score of 3.5 to 4.5. Asymmetry to the keel suggests injury or atrophy of one wing.
- Note any subcutaneous fat present over the keel or in the shoulder region. This will be an indication of the recent feeding history of the bird.
- Adult birds which participate in brooding eggs or young, mostly the female but sometimes the male, will have a brood patch or bare area encompassing most of the chest during the incubation and brooding season. The small feathers have been plucked and the skin appears puffy and wrinkled.
- Examine the clavicle and coracoid bones, extending from the shoulder joints to the keel and sternum. Each pair of bones forms a wide “V”. The clavicles, near the surface and easily felt with the fingertips, are fairly flexible and act as springs during flight, storing energy. The coracoid bones are located immediately under the clavicles, deeper in the hollow between the shoulder joints and attach to the sternum. This set of fairly massive bones form the main connection between the wings and the body. Subcutaneous fat may prevent their examination. Both sets of bones should be checked by feel for fractures and sometimes radiographs are needed to determine injuries.
- Examine the abdomen and vent area. The abdomen should be flat to slightly concave and is often bare of feathers. In very young birds, the abdominal area may be grossly distended due to large amounts of food in the stomach. Female birds ready to lay an egg may also have a very distended and hard abdomen. The area immediately surrounding the vent needs to be checked. Any evidence of soiled feathers suggests an injury or general weakness. A healthy bird will raise its tail out of the way before defecating, maintaining a spotless plumage.
- Turn the bird onto its stomach for a brief period to examine the back, starting at the shoulders and working down towards the base of the tail. The spinal column can be felt readily, since little muscle tissue surrounds it. Check the vertebrae for any displacement. Small amounts of rubbing alcohol will allow visual examination of the tissues. Do not use alcohol if open wounds are present. The shoulder joints and scapulas can be felt and seen. Check for bruising, open wounds, and scabs.
- The pelvis area can be described as an inverted V, with the point towards the head. Examine the hip joints and the uropygial gland, often called oil or preen gland, just above the tail for injuries. Notice the transparency of the skin in many areas. It allows for easy inspection of underlying tissues, such as bruising within the pelvic bones.
- *Proper restraint is very important, both for the safety of the bird and the safety of the handlers. A firm, yet gentle approach is needed and experience is key. Learning how tight to hold a bird comes with practice on lots of birds under all kinds of different circumstances. Keep in mind that the bird has to be able to breathe. Movement of the chest should not be restricted. Try to keep the bird's struggling to a minimum by support the bird and maintaining a firm grasp on the legs.*

WINGS

- Turn the bird onto its back again and examine each wing. Begin with the wing “pits”. Gently parting the feathers will reveal another bare area and allows a visual check of the sides of the body wall and the shoulder area. Muscle tissue will appear dark pink and the ribs may be seen and felt along the abdominal wall.

- Feel the entire length of the wing, from shoulder joint to metacarpal tip, but stretch the wing very gently, avoid performing any extensive movements. By palpating the bones from above and below the wing, feel for fractures, dislocations, scabs, and open wounds. Crepitus is the term used to describe the feel and sound of bone ends grinding against each other.
- The condition of the feathers will sometimes be an indication of where to look for an injury. Pay attention to dried blood and feathers that appear out of place. However, don't restrict the search for injuries to that particular area. Always perform a complete physical examination.
- The joints of the wing include a ball-and-socket joint at the shoulder, a hinge joint at the elbow, and a complicated combination of joints at the wrist. Normal extension is approximately 110 degrees at the elbow and 180 degrees at the wrist joint. At the shoulder joint, the humerus can usually be elevated up (towards the head) to almost 90 degrees. It can be extended towards the back and the front of the bird also. Dislocations are quite painful to the birds and movement is usually limited due to swelling. When in doubt compare the injured wing to the opposite intact wing.
- The humerus has a sharp crest near the shoulder, often very prominent even in healthy birds with sufficient muscle mass. Near the elbow, the humerus is only covered by transparent skin and therefore readily visible. The ulna runs parallel to the much thinner radius. The radius and ulna slide past each other, as the wing is folded or extended. They can also twist with respect to each other, enabling rotation of the wing. Check carefully for old calluses that may have formed a bridge between radius and ulna. If so, movement of the wing will be severely limited. The radius (closer to leading edge) can be felt along most of its length due to the lack of tissue covering it. The ulna, on the other hand, has quite a bit of muscle surrounding it. The metacarpal bones are very prominent and a hollow space between the major and minor metacarpals may be mistaken for an injury. Examine the very distal portion of the wing, where very small sections of bone support the outermost primaries. Joints between the metacarpal bones allow for some movement.
- Visually examine the tissues along the wing. Small amounts of rubbing alcohol can be applied to the feathers, as long as no open wounds are nearby. The alcohol will cool the bird somewhat, but unlike water, alcohol will evaporate quickly. Check the coloration of the various tissues, including the bones where visible, and compare sides when necessary. Tendons and ligaments are evident through the thin skin near the elbow joint and a large vein can be located at the very proximal end of the ulna and distal, medial humerus, near the elbow. In young birds the plumage has often not developed completely and the skin can be seen readily without the need for alcohol application.
- Check for healing fractures including the extent of any callus (meshwork of woven bone that form on the original fibrin clot post-fracture during the healing process). Calluses near joints may inhibit normal joint function. A relatively recent callus may be more fibrous than bony and still allow limited movement of the opposing bone fragments.
- The patagium is a very thin membrane forming almost half of the leading edge of the extended wing. The patagium consists of a triangular section of skin and feathers between the shoulder, elbow and carpal joints. It is also known as the wing web. Check for tears and irregularities, "knots", along its edge. Even at full extension of the wing, this leading edge should still have elastic properties.

LEGS

- Examine the legs, starting at the hip. Feel along each portion, from the femur, to the tibiotarsus, through the tarsometatarsal joint, hock joint, then the tarsometatarsus down to the toes and the joints in each toe. Stretch each leg out very carefully and check for wounds, healed or fresh fractures, and dislocations.
- *Communication between the handler and the examiner is critical during this part of the examination. Always confirm who is holding each leg while handing off.*

- The joints of the leg include a ball-and-socket joint at the hip, hinge joints at the knee and hock, and a combination of joints in each toe.
- The toes are numbered one through four, beginning with the hallux, the single toe pointing to the back, designated number one. The inside front toe is designated number two, and along with the hallux is the strongest toe. The center front toe is designated number three and in some species is extremely long, likely an adaptation to reach around prey. The smallest and often weakest outer front toe is designated number four.
- In the osprey, the number four toe is pointing backward, not forward. In many owl species, this toe can be rotated in its position to some extent, to point either backwards or to the side.
- *It is good practice not to reach over the bird to examine the opposite side. Instead, walk around the examination table to the other side or have the handler rotate the bird 180 degrees on the table.*
- To evaluate the toes, check each joint for extension, proper alignment and positioning, and the ability to open and close properly. The tendon-locking mechanism assists birds during perching and grasping prey. A loud ratcheting sound is evidence of this feature, as the toes are forcefully opened. Combined with the strength of its grasp, this makes examination of the feet sometimes difficult. Take advantage of an open foot and examine the bottom surfaces for wounds, swelling, and any other sign of injury. Even small cracks or worn and shiny areas are cause for concern and should be noted.
- *It may be helpful to insert a small wad of gauze or towel into an open foot to prevent the bird from closing its foot. This will make examination of the foot easier and can also prevent self-inflicted wounds to the toe pads.*
- The central portion of the foot and the toes feature small fleshy pads on the underside, probably for protection and padding. Accipiter hawks have very pronounced fleshy “knobs” on the distal toes.
- *Do not place your fingers inside the feet. While being grabbed by a small raptor may only result in small (but painful) punctures, a medium-sized raptor like a barred owl can inflict serious wounds. Large raptors possess considerable strength in their feet and may require two or more people to forcefully open a foot.*
- Dehydration can be evident in the resilience of the skin. In diurnal raptors and those owl species with un-feathered toes, the skin on the dorsal side of the foot or even the toes can be pinched. The skin should not stay tented for more than a second, but rather should resume its normal position almost immediately.

FEATHERS

- Briefly examine the plumage for signs of injury, recent captivity, and evidence of stress. Close inspection of the plumage may also help determine the age and sex of the bird.
- The main flight feathers, remiges, consist of ten primaries and twelve to fifteen or more secondaries, depending on the species. The primaries originate at the trailing edge of the metacarpal bones and are numbered from the carpus out, the number ten primary forms the leading edge of the distal wing. The secondaries originate at the ulna and are numbered from the carpus to the proximal ulna, the number one secondary is adjacent to the number one primary.
- The tail consists of twelve retrices or tail feathers, six on each side, numbered from the center out.
- The function of feathers includes providing lift, insulation, camouflage, gathering sound, helping provide an aerodynamic shape to the bird, communication, and waterproofing.
- Signs of trauma include feathers cut or broken by impact, singed by electrical current or fire in a fireplace, and feathers matted with blood or discharge.

Continued on next page

- Fault bars or stress marks indicate conditions during the time of molting of the affected feathers. The lack of food or the stress of injury, captivity, or human contact can all be causes. These fault bars can also assist in the determination of the age of the bird. Look for parallel lines on both sides of the feather shaft, angled at approximately 45 degrees with respect to the shaft. In severe cases, these lines will actually be holes. The shaft itself may also be deformed. Fault bars are structurally weak areas and will predispose feathers to break in those particular regions.
- Feathers grow in rows or tracts called pterylae.
- Examine feathers for differences in coloration, shape, and wear. It is helpful to know the molting patterns of raptors. Juvenile birds molt in their entire plumage within a very short time period. All their flight feathers are fairly uniform in coloration, and if stress marks are present, they occur at the same location on many feathers (also see vol 10-11, Sept/Dec 2002 “Age of a Bird”).
- Most adult raptors go through a single molt each year, usually during late spring, summer and early fall. Along with body contour feathers, flight feathers are dropped and replaced in regular and symmetrical fashion on both wings. The adult flight feathers are usually somewhat different in length and shape from juvenile flight feathers. In any given year, an adult raptor will only replace a certain number of primaries and secondaries. During the following molting season, feather replacement will continue where it stopped the previous fall. By comparing adjacent feathers for differences in coloration, fault bars, and wear patterns, it is often possible to determine, how many molts an adult raptor has gone through. One can usually only distinguish about three different age classes of feathers. Beyond that the differences are often too minute to detect.
- Use caution near any large feathers that are in the process of molting. Such feathers are often called blood feathers because of their strong internal blood supply. If damaged, significant blood loss may occur and the resulting feather will probably be weak or deformed. Actively bleeding blood feathers should be pulled with a hemostat or needle-nosed pliers to stop the bleeding. Direct pressure over the follicle may be necessary after the feather is pulled.
- Make note of any parasites found on the plumage, such as hippoboscids, “flat flies”, and feather lice. The presence of more than just a few individuals usually indicates that the bird has been weak or injured for some time.

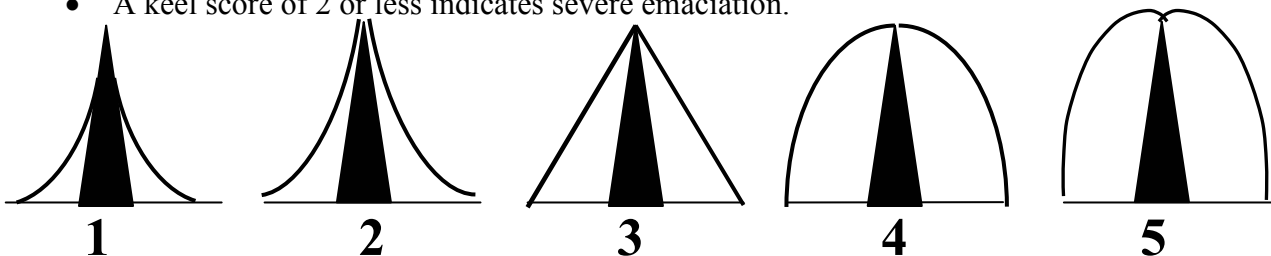
RECORD YOUR FINDINGS

- List suspected primary problems such as a fractured wing, and secondary problems such as dehydration or emaciation. Secondary problems are the result of the birds’ inability to hunt after the primary injury has occurred and, depending on the time elapsed, can be life-threatening by the time a bird is admitted for rehabilitation.
- Determine critical injuries and problems that need to be addressed immediately.
- Start a treatment list or plan of action to address all the problems found.

KEEL CHART

The drawings represent a cross section through the body of a bird. The central black triangle represents the keel bone and the lines on either side indicate the amount of muscle tissue on both sides of the keel.

- A healthy bird will usually have a keel score of 3.5 to 4.5.
- A keel score of 2 or less indicates severe emaciation.



WRNC Board of Trustees 2004 Nominee Bios

Jennifer Burgin – New Candidate

Jennifer has been a rehabilitator in Henderson CO. (district 9) for 12 years. She has dealt with a wide variety of animals but is currently concentrating on critical care of squirrels. She takes in approximately 200 animals a year and teaches rehab classes in her area. She seeks to improve networking among rehabilitators in the state. She feels that a mentoring system for new rehabilitators could be an important adjunct or alternative to formal training. She is open to alternative methods of accomplishing the goal of the elevating the quality of rehabilitation across the state.

Toni O'Neil - New Candidate

Toni holds a B.S. in Zoology with a minor in Wildlife Management from the University of Maryland. She has been a rehabilitator for 13 years and holds state and federal permits. Toni has held administrative positions with ARC and has taught classes for CRC, ARC, and Carolina Wild Care. She has given presentations to school and civic groups. She believes in a strong state-wide networking system to assist rehabilitators at all levels, and to encourage them to participate and become involved in reaching out to others. She believes that communication between rehabilitators is vital to further education, keep current, share ideas, and be better able to serve the animals the public. She is relocating to the coast and looks forward to representing the Eastern part of the state.

Carla Johnson – Incumbent

Carla is vice president of WRNC and president for Wildlife Rehab, Inc., her local rehab group. She coordinates wildlife rehabilitation classes through the local community college in Winston-Salem, NC and presents countless environmental education programs to the surrounding community for Wildlife Rehab, Inc. each year. Carla is responsible for maintaining

WRNC's membership records and for producing the membership directory.

Joan McMurray – Incumbent

Joan is a retired Air Force nurse. She has been actively involved in wildlife rehabilitation for over 20 years and holds both state and federal permits. She began by volunteering at a center in Maryland for 5 years, moved to NC where she rehabbed out of her home for 14 years and has been the Rehabilitation Coordinator at the zoo's Wildlife Rehabilitation Center since it opened in 2001. As such, she is involved in the day to day care of the animals, supervising the other volunteers, planning and conducting educational activities for the public and the volunteers. Joan feels that a strong state organization can help improve the quality of rehabilitation throughout the state by offering educational opportunities and networking among rehabilitators. Joan is currently the secretary of WRNC.

Sally Davis – New Candidate

Sally received her BA in computer science and graduate certificate in education, middle school sciences, from Dartmouth College. After ten years of international computer consulting and teaching, including executive level management experience, she now pursues her dream career as a DVM student at NCSU, College of Veterinary Medicine. Recent wildlife rehabilitation experiences include pinniped and cetacean rehab at Mystic Aquarium in CT, volunteer work at the Schindler Wildlife Rehabilitation Center, and turtle team at the CVM. She has also pursued interests in nutrition and zoo medicine at the Brookfield Zoo in Chicago, Mystic Aquarium and the NCSU Center for Marine Science and Technology in Morehead City. She edits the WRNC newsletter and looks forward to the opportunity to take a more active role as a board member. If elected, she would work actively to strengthen WRNC ties with the Vet School.

ABSENTEE BALLOT

You may cast one vote for up to four candidates by placing a check next to candidates' names. Write-in candidates must be members in good standing that have agreed to serve as Trustees.

The Nominating Committee hereby nominates the following slate of candidates for positions on the WRNC Board of Trustees.

Three-year term	Write-in candidates
<input type="checkbox"/> Jennifer Burgin	<input type="checkbox"/> _____
<input type="checkbox"/> Toni O'Neil	<input type="checkbox"/> _____
<input type="checkbox"/> Sally Davis	<input type="checkbox"/> _____
<input type="checkbox"/> Joan McMurray	<input type="checkbox"/> _____
<input type="checkbox"/> Carla Johnson	

Ballots must be received by January 20th, 2004.
Mail to WRNC, 2542 Weymoth Rd, Winston-Salem, NC 27103

WRNC
2542 Weymoth Rd
Winston-Salem, NC 27103

ADDRESS CORRECTION REQUESTED