



NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish, Wildlife
and Marine Resources

**New York State
Wildlife
Rehabilitation
Study Guide
2013**



Photo credit: Christopher Schiralli



Photo credit: Christopher Schiralli

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Acknowledgements

The 2013 revision of the *NYSDEC Wildlife Rehabilitation Study Guide* and *Wildlife Rehabilitation Practice Examination* represent the best efforts of people who care about wildlife. These booklets were produced by wildlife professionals: veterinarians, biologists, and rehabilitators. These documents should not be considered the end point of a project but rather the beginning of a cooperative process among wildlife professionals for the benefit of wildlife in New York State.

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I. Introduction to the Study Guide and Practice Examination

You have received this booklet because you have expressed an interest in becoming licensed to rehabilitate wild animals in the State of New York. The factual and philosophical information in this booklet will help you to understand the nature of wildlife rehabilitation, and will help you decide whether or not you really wish to become involved in this activity.

It is important to remember that the information in this booklet is just the barest introduction to wildlife rehabilitation. Understanding and learning these concepts will help you acquire your license, but the information contained in these booklets should be just the beginning of your learning. A good rehabilitator continues to develop his/her skills. It is by reading some of these references, going to conferences, and networking with other rehabilitators that you will improve.

What is the Study Guide?

The *Study Guide* will serve as your introduction to the field of wildlife rehabilitation. It contains a great deal of information about the nature of wildlife rehabilitation in an easy to read format. The *Study Guide* also tells you how wildlife rehabilitation is regulated by the State of New York. The accompanying *Practice Examination* contains nearly 500 questions with answers and explanations for you to study.

How to use the Study Guide

First read the *Study Guide* with care. Some of the examination questions are taken directly from the material in the *Study Guide*. Secondly, it is to your advantage to obtain a good rehabilitation manual to help answer questions that may not be directly covered in the *Study Guide*.

You should spend some time seriously considering some of the difficult biological and philosophical issues presented in the *Study Guide*. It is equally important that prospective rehabilitators spend some time working with and learning from people who are already licensed to rehabilitate wildlife. Each year, the New York State Department of Environmental Conservation (NYSDEC) produces a list of active licensed wildlife rehabilitators, which is available to all wildlife rehabilitators.

What is the Practice Examination?

The examination to become a licensed wildlife rehabilitator in New York consists of approximately 100 written questions. You must achieve a score of eighty percent (80%) or higher to pass this examination. The questions are derived from the material covered in the *Practice Examination*. This will help you understand the reasoning followed by licensed wildlife rehabilitators and NYSDEC staff.

How to use the Practice Examination

By reading the questions and studying the answers you will learn a great deal of specific information about the biology of wild animals and the nature of wildlife rehabilitation. Do not attempt to memorize the examination. Rather, you should use it as a guide to your thinking. Always ask yourself the “why” questions--why is answer “c” better than “a”? The correct answer to the question is the basic knowledge which one can build upon.

How to prepare for the NYS Wildlife Rehabilitation Examination

The examination contains a great deal of specialized information. It will be difficult to do well on it without study and advanced preparation.

The *Study Guide* and *Practice Examination* should be the starting point in your study. The Principles of Wildlife Rehabilitation manual published by the National Wildlife Rehabilitation Association (NWRA) (Appendix VII), or another similar reference, will also be a valuable asset. Purchase some of the more common field guides for identification of native animals, and look up each of the species mentioned in the *Study Guide* to begin learning about our native wildlife.

We have tried to make the examination questions as clear and unambiguous as possible. Each question has only one answer that will be considered correct. If you disagree with the answer given, or have questions about the material, please contact the NYSDEC Wildlife Rehabilitation Program Coordinator in Albany with your comments.

The best way to become familiar with the realities of wildlife rehabilitation is to spend time with licensed practicing rehabilitators. Your regional NYSDEC office (Appendix I) can assist you in finding licensed rehabilitators in your area. A list of wildlife rehabilitators is available at http://www.dec.ny.gov/docs/wildlife_pdf/wrlist.pdf.

Volunteering or becoming an assistant wildlife rehabilitator is highly recommended and will help you decide if you want to dedicate the time, money and effort required to be a good rehabilitator. Ask questions about the best facilities, look at the kinds of reference books used by licensed wildlife rehabilitators, find out how they have located cooperating veterinarians, and to whom they go when questions arise. **An apprenticeship with a federally licensed avian wildlife rehabilitator is, in fact, a requirement for issuance of a Federal permit to work with many species of birds.**

You can also become a member of a state wildlife rehabilitation organization, such as the New York State Wildlife Rehabilitation Council (NYSWRC), and one or both national organizations: NWRA and International Wildlife Rehabilitation Council. See Appendix V for more information about these organizations. These groups publish newsletters that will serve as another invaluable educational resource.

Whenever possible, you should attend a state or national conference for wildlife rehabilitators. Training offered at these conferences may become mandatory in the future and adds significantly to your ability to perform rehabilitation at its highest level.

II. Introduction to wildlife rehabilitation: purpose and philosophy

Definition of wildlife rehabilitation

Wildlife rehabilitation is the practice of legally caring for sick, injured, orphaned or displaced wildlife in order to release a physically healthy and psychologically sound animal back into the wild. This can involve rescuing, raising, and arranging for veterinary medical care. Successful rehabilitation results in an animal fully capable of functioning in the wild. This includes recognizing their natural diet, obtaining appropriate foods, interacting with and selecting mates from their own species, and demonstrating a normal fear of potential dangers (cats, dogs, people, cars, etc.).

What licenses are required to be a wildlife rehabilitator?

A licensed wildlife rehabilitator is a person who carries out the aforementioned activities. A special state license is required in virtually all areas of the United States to legally conduct wildlife rehabilitation activities. Permits from these federal agencies are also required to rehabilitate the following species:

US Fish and Wildlife Service

Migratory birds and all threatened and endangered species, such as bald and golden eagles.

<http://www.fws.gov/migratorybirds/mbpermits.html>

National Oceanic and Atmospheric Administration

Marine mammals

<http://www.nmfs.noaa.gov/>

Obtaining a wildlife rehabilitator license

To get a license as a wildlife rehabilitator in New York, you must meet the following qualifications:

1. Be over the age of 16 years, a resident of New York and of good character and reputation in the community as judged by two character references written by persons not related to you or each other;
2. Not have been convicted of or pleaded guilty to a violation or misdemeanor under the Environmental Conservation Law or settled and compromised a civil liability, nor have been convicted of any misdemeanor or felony within the previous 3 (three) years;
3. Receive a grade of 80% (eighty percent) or higher on a written examination administered by the department and designed to test your knowledge in the field of wildlife rehabilitation; and
4. Be interviewed by a regional department employee responsible for the wildlife rehabilitation program to assess your proficiency in wildlife rehabilitation.

If you feel that you are qualified, the first step in the licensing process is to complete the Wildlife Rehabilitator License Exam Application (<http://www.dec.ny.gov/permits/25027.html>) to register for the exam. Return the form to:

NYSDEC
Division of Fish, Wildlife and Marine Resources
SpecialLicenses@dec.ny.gov
Special Licenses Unit
625 Broadway
Albany, NY 12233-4752

If you have questions, please call the Wildlife Rehabilitation Program Coordinator at (518) 402-8985.

The Special Licenses Unit will receive and process your application. They will notify you of the date and location of your examination approximately one month before the scheduled exam date.

Additional permits for education and research, and rabies vector species

Remember that a Wildlife Rehabilitator License does not allow you to keep animals long-term for educational or scientific purposes. Additional special licenses are needed for these activities.

Additional permit requirements must be met to hold educational animals, body parts, nests, eggs and/ or to present programs using live animals.

Rehabilitators that are licensed by NYSDEC are not permitted to handle or possess rabies vector species (RVS) without an additional WRL-RVS license. **This includes transportation of these species to a licensed rehabilitator.** The WRL-RVS license requirements include attending a special training course offered at the New York State Wildlife Rehabilitation Council's annual seminar, followed by meeting a number of other requirements by several state agencies. Additional requirements include a working relationship with a cooperating veterinarian, pre-exposure vaccinations, construction of special housing in an area separate from other animals with posted, double wired and double door locked caging, and inspections from the State officials. Forms are available at <http://www.dec.ny.gov/permits/25027.html>. Presently, rabies vector species in NY include raccoons, skunks and bats.

Communicating with licensed wildlife rehabilitators in New York State

The New York State Wildlife Rehabilitation Council (<http://www.nyswrc.org>) and other licensed wildlife rehabilitators in the state have developed an informal statewide communication network to enhance education and cooperation between rehabilitators. This network gives you the ability to contact other rehabilitators by telephone or email in order to obtain information and advice on wildlife concerns. If an animal needs specialized care or facilities, the network can help you move animals quickly (unless other regulations are applicable) into appropriate care.

The important working relationship between rehabilitators and the NYSDEC is also part of the network of wildlife care. The NYSDEC provides timely and relevant information on wildlife issues, oversees your licenses, and directs the public to licensed wildlife rehabilitators when necessary.

What is a “qualified beginning rehabilitator?”

A person who has passed the NYSDEC licensing examination in New York State, and has completed any other requirements mandated by the state, is a qualified beginning rehabilitator with a WRL 1 license. Possession of a state issued rehabilitation license allows you to accept native mammals, (excluding the rabies vector species which requires additional training and licensing), reptiles and unregulated bird species (such as pigeons, European starlings, house sparrows) and some regulated game birds (turkey, pheasant, grouse). An additional permit issued by the U.S. Fish and Wildlife Service is required to rehabilitate songbirds, birds of prey and other federally regulated species (<http://www.fws.gov/migratorybirds/RegulationsPolicies/mbta/MBTAProtectedNonprotected.html>).

Every newly licensed wildlife rehabilitator must keep in mind that there is a vast amount of continuous learning. The welfare of the animals you take in is dependent on an awareness of your limitations. You will gain experience as you identify, handle and care for wildlife, but much of your continuing education must come from reading, attending meetings and conferences, and learning from more experienced rehabilitators. Your early years as a licensed wildlife rehabilitator will be critical in learning how to most effectively help distressed wildlife.

III. Why people become wildlife rehabilitators

A licensed wildlife rehabilitator's role in the community

1. Provide care for distressed wildlife

Licensed wildlife rehabilitators exist because of the public's need to find qualified care for wildlife in distress. It is the job of the licensed wildlife rehabilitator to coordinate the medical and nursing care for ailing or orphaned wild animals. Possession of a license to rehabilitate wildlife does not make the possessor a veterinarian, wildlife biologist, law enforcement agent, or a nuisance animal control officer. Therefore, it is important to have sound relationships with other professionals to avoid or alleviate many of the problems that occur when people and wildlife come into conflict.

Wildlife biologists working for the NYSDEC and other State and Federal agencies are responsible for maintaining healthy wildlife populations and preserving the natural habitats critical to their survival. The Department of Health is responsible for control of zoonotic diseases (those diseases that may spread from wildlife to people). The Department of Agriculture and Market's staff members concern themselves with the positive and negative effects that wild animal populations may have on the state's agricultural resources. Good rehabilitation practices must understand and balance the concerns of these agencies with those of the individual wild animal.

2. Educate the public

As a licensed wildlife rehabilitator you will serve as an “Ambassador for Wildlife.” In many cases, you will be the first contact the public has with the professional wildlife community. What you say to the public, both on the phone and in person, may be crucial to the health and safety of that person. Don't take this responsibility lightly! In general the public is often very caring, but relatively unfamiliar with the realities of wildlife biology. As a rehabilitator, you must serve as a resource for correct biological and legal information while remaining sensitive to the concerns of the person seeking help from you. You should never trivialize the caller's concerns, or make them feel their call is unimportant. You can use the opportunity to increase their awareness of the natural communities around them and the impact humans have on wildlife and their habitats. Every time you speak with someone on the phone, or address a school or civic group about wildlife and rehabilitation, you must keep in mind that doing your job well may expand their environmental awareness for the future. If you do your job poorly, or present inaccurate information, the public may not take you seriously or consider you to be a wildlife professional. If you do not know the answer to a wildlife question, you must be able to say “I don't know” and then use all the resources available to you to find and give the correct answer.

Special permitting is required to house and use wildlife in public programs. Licensed wildlife rehabilitators are prohibited from showing rehabilitation cases to the public. A USDA Class C Exhibitor's Permit is required to exhibit mammals for educational purposes. A USFWS Migratory Bird Education Exhibition permit is required to exhibit migratory birds (Appendix IV).

A licensed wildlife rehabilitator's responsibilities in the community

1. Safety of the rehabilitator and the public

Often in our concern to help an animal, we forget the most important thing of all: human safety. You must always protect yourself and those who work with you. The skills needed to handle dangerous animals require experience and an intimate knowledge of the particular species and its unique behaviors. Without proper handling tools (gloves, catch poles etc.) even seemingly harmless mammals like squirrels can inflict serious injuries. Unless you are properly prepared and equipped to restrain a given species, you should not accept it for rehabilitation.

This safety responsibility extends to your advice to the public when they have found an injured animal. No one has yet defined many of the legal liabilities for wildlife rehabilitation, but it is easy to imagine the potential for a lawsuit should a member of the public be hurt while following your advice.

You should collect as much information as possible about the species and how it is behaving. Use your knowledge of that animal's natural behavior, and potential for zoonotic disease infection to give the caller advice on careful handling. Try to avoid having the caller physically handle an animal. Recommend that they wear gloves if available and wash their hands thoroughly when finished. Many smaller animals can be gently pushed into a pet carrier or a cardboard box with a broom or other implement. If the rescuer gets injured while trying to capture an animal or if they have been in physical contact with a sick animal, they should be referred to their human health practitioner for evaluation.

2. Recognize when an expert is needed

It is always fun and interesting to try something new, but resist the urge to be a hero. In the end, if you make a mistake, it will be you and/or the animal that pays the price. If you don't know something, get on the phone or the computer and ask for help from other well-respected rehabilitators and/or your veterinarian. Be wary of internet advice unless you know who is giving it.

Remember that wildlife rehabilitators are not nuisance control personnel. That activity requires its own set of permits. You are not licensed to remove raccoons that are denning in chimneys, or to live-trap nuisance skunks or woodchucks, etc. However, you can provide biologically sound information to the public to prevent animals from being injured, or young animals from being orphaned. Often the callers are pleased to have some advice that will help solve nuisance problems without resorting to more extreme control methods. Often you can just tell them to “wait it out” and they will leave on their own. You can provide the name of a NYSDEC licensed nuisance wildlife control operator whose services you recommend (list available at <http://www.dec.ny.gov/animals/81548.html>). More information on safe handling of nuisance animals is available at <http://www.dec.ny.gov/animals/7005.html>. A NYSDEC guide for nuisance control operators also has valuable advice at <http://nwco.net/default.asp>.

Licensed wildlife rehabilitators are not legally required to go out and pick up sick or injured wildlife. However, many will perform this service if their time and money permits. Remember that you are a volunteer and can say “no.”

Realities of being a licensed wildlife rehabilitator

Wildlife rehabilitation is a very rewarding activity, but it can make great demands and create major stresses in your personal life. These difficulties need to be thoroughly understood and appreciated before you become involved. Many enthusiastic beginners burn out after the first year or two of rehabilitation. If you have a realistic understanding of the responsibilities of rehabilitation, you can help ensure both your longevity in the field, and that the rewards of rehabilitation outweigh the frustrations.

1. Time

Good rehabilitation will take much more of your time than you expect. When you have living creatures in your care, you must be constantly attentive to their needs. Hatchling songbirds require feeding every 15-20 minutes from early morning to evening. Mammals that are very young need feeding every couple of hours around the clock. Then diets must be prepared, housing cleaned, cages built and maintained, water changed and bottles scrubbed. Then it is time to start the process all over again.

Animal care will interfere with your family and social life. If you have animals under care, you may not be able to go out, or if you do, you may have to return early to feed or care for animals. You should take the needs of your family into consideration. How will they react when you tell them you can't go away on vacation because you have been unable to find a qualified substitute caretaker? This is one of the reasons that it is important to establish mutual relationships with other area rehabilitators and veterinarians who treat wildlife. This contact network can help minimize some problems.

To make sure that animals get to you as rapidly as possible, you will be distributing your contact information to many people in your area, such as veterinarians, humane societies, pet stores, police departments, nature centers, etc. It won't be long before you become known as the local person who cares for wildlife. This leads to the issue of telephone calls. Once your number is out there you will get calls for animals genuinely in need of help. You will also get calls for stray cats, raccoons in chimneys, baby birds and fawns that are presumed abandoned, and skunks under someone's porch. You must decide what you can and cannot do. Good rehabilitation should be, in a large part, preventative rehabilitation. Much of your telephone time will be spent trying to convince people not to interfere with wildlife – the baby bird is just fine, please leave the fawn alone, do not catch the baby bunny and the raccoons will stop annoying you if you make your garbage cans inaccessible. You can offer ideas or suggest solutions if there is a true problem.

There is only so much time in a day. It is part of good rehabilitation to realize that there are limits to your time. You must manage your time and the number of animals you take in. The animals in your care deserve your time and care, but you have to balance their needs with those of your family, home and the job that helps pay for your rehabilitation activities.

2. Money

You are not permitted to charge a fee for taking care of wildlife. It is a common misconception that “the state” pays for wildlife care. In reality, the vast majority of the expenses associated with rehabilitation are paid for by you, the wildlife rehabilitator. You must buy food, caging or the materials to build cages, specialized handling equipment, protective clothing, and medications (along with paying for veterinary bills). You will also increase the use of your car, and the amount you spend on cleaning supplies and utilities including telephone, electricity, even water if you pay for that. In addition, you will need to buy

books to find answers to your problems, and you'll want to join organizations to increase your knowledge and skills as a rehabilitator, and to enable you to network with others in the field.

You are allowed to accept donations for wildlife care. Many larger rehabilitation facilities actively solicit donations from people bringing them animals, or try to encourage support from local civic groups. Most of these larger facilities are legally incorporated as a 501(c)(3) non-profit as well as through the NYS Charities Bureau. If you are not incorporated and registered, you may be personally liable for paying taxes on donated money. It would be wise to check with an accountant or tax advisor before accepting any significant donations or claiming any tax deductions. Consult an attorney to establish your legal responsibilities. You may wish to purchase additional liability insurance. Remember that very few licensed wildlife rehabilitators in the United States receive enough in donations to cover their costs.

Another reason to consider incorporation is to limit personal liability. The question of legal liability for rehabilitators has never been adequately addressed. If you have employees or volunteers, or if you are licensed to use live animals for public education, it is strongly recommended that you consult an attorney about incorporation and purchase adequate liability insurance. **Please note that a separate license is required to possess wild animals for educational purposes.**

It may also be important to check local ordinances that may have an impact on your ability to operate a rehabilitation facility. This will be dependent on where you live. Some areas have local zoning regulations that concern housing wild animals and compliance with these can be a significant expense. If you intend to rehabilitate potentially dangerous animals, or are keeping education animals for longer periods of time, knowledge of local regulations will be especially important.

3. Dealing with death and euthanasia

We all think about the lifesaving aspects of wildlife rehabilitation, but the reality is that more than half of the animals that are brought in to rehabilitation centers either die or must be euthanized (humanely killed) because of the serious nature of their injuries or illnesses. Accepting this reality is a necessary part of your job as a licensed wildlife rehabilitator.

Some animals will seem to be doing very well, and then die unexpectedly. Others will have been cared for with heartbreaking amounts of effort, sleepless nights, and expensive medications. You will become attached, and they will die. It will happen again and again. Are you prepared for this?

Sometimes, the ultimate test of a rehabilitator is caring enough about an animal to end its life. And if you get into rehabilitation, you will have to be able to make decisions to humanely euthanize animals. Animals will come into your facility so badly injured that no one can save their lives. The decision to euthanize is not difficult in most of these cases, because you know the animal has no future, and your actions will save the animal from prolonged suffering.

Another difficult decision must be made when an animal can survive its injuries, but never be returned to the wild. For example, a gray squirrel that has an amputated leg will not be releasable to the wild, but could live, potentially for years, in captivity. Although you can occasionally find a placement opportunity with an appropriately licensed facility for an animal to be used for teaching purposes, these placements are very hard to find, especially for common species. This means that you have some choices to make for the animal. Beginning rehabilitators will often try to keep everything alive, because they think only of saving animals. But rehabilitation is about doing the best thing for the animal, and

often euthanasia is the best thing. **Your license does not allow you to be a long-term holding facility for non-releasable animals. These are wild animals that may not do well in captive situations.** Rehabilitators must ask themselves very serious “quality of life” questions. No animal should spend its life in a cage because a rehabilitator can't face a euthanasia decision.

Euthanasia should be examined from a practical perspective as well. Who will be doing it? What techniques are available to you? How will you dispose of the carcasses? Some of these questions will be addressed in later sections, but you need to have your answers in place before you start receiving animals. Many humane euthanasia techniques require the use of injectable drugs and can only be performed by a veterinarian. It is important that you discuss the issue with your veterinarian early. Remember, no animal should suffer needlessly because you have not dealt with this aspect of wildlife rehabilitation.

Cultivating a relationship with a veterinarian

It is essential for a wildlife rehabilitator to develop a sound working relationship with a veterinarian. Talk honestly about rehabilitation with your veterinarian and find out if they are interested in helping you with wildlife. Ask if she/he might consider providing services either for free, or for the cost of the materials. Some veterinarians are willing to treat wildlife, but will charge you as a regular customer. Some may prefer not to handle rabies vector species in their facility, but may come outside to perform a humane euthanasia. And some may prefer not to actively care for animals, but will offer to provide euthanasia services without charge. Veterinarians have to make a living, and helping wildlife for little or no charge will have an effect on their income. Wildlife rehabilitators should make good use of any time spent with a veterinarian as their time is valuable. It is best to develop a working relationship with a veterinarian slowly. It is not a good idea to arrive at their clinic with 10 animals and demand that they help you. They will rarely provide services again after that. Some veterinarians will help out because of their own interest in wildlife, others will become intrigued by an unusual or difficult problem and their interest will mature from that point. Please remember how important it is to show the veterinarian how much their knowledge and skill is appreciated.

It must be clearly understood that rehabilitators are neither trained nor licensed to diagnose and treat an animal's ailments except under the direction of a veterinarian. Medical or surgical treatments are the domain of licensed veterinarians. They can support efforts to help wildlife by taking x-rays, doing blood work, completing fecal exams for parasites, performing surgery, tranquilizing animals, providing euthanasia services, and sometimes disposing of carcasses. As your facility grows and you become more experienced, you may wish to learn how to do some laboratory work yourself, and your veterinarian may be glad to help you learn. In return, you may be able to help the veterinarian by accepting wildlife calls from his/her clients, by taking in orphaned baby birds or mammals that are brought to their clinic, and by referring new people to their practice.

Education and wildlife rehabilitation

Wildlife rehabilitation is a professional and dynamic field with frequent improvements and changes. It is essential for you to keep informed and educated. To properly help animals, you must be able to identify them and know something of their habits in the wild (natural history). Wildlife rehabilitators and veterinarians interested in treating wildlife are encouraged to:

1. purchase appropriate field guides so that animals can be properly identified;
2. research which species are threatened, endangered or protected by the State of New York (<http://www.dec.ny.gov/animals/7494.html>) or the Federal government (<http://fws.gov/endangered/species/us-species.html>), and what specific permits are required to treat native wildlife;
3. assemble a library of books and journals on animal natural history, animal care, and zoo and wildlife medicine;
5. identify licensed wildlife rehabilitators and interested veterinarians in your area;
6. encourage interest and education of your veterinarian and his/her staff on issues of wildlife biology and medicine;
7. join an organized group of licensed wildlife rehabilitators both on a local, national and international level (Appendix V);
8. attend conferences to have access to hands-on workshops and update your skills; and
9. be cautious of advice found on the internet.

Who to call when a problem arises

Knowing where to get information is an important part of being a successful wildlife rehabilitator. Every rehabilitator should have up-to-date information for the contacts listed on the following page, which can be kept next to their phone for quick access.

WILDLIFE REHABILITATOR CONTACT LIST

1. Local veterinarians with wildlife expertise _____
2. Area rehabilitators and their areas of expertise _____
3. Animal Control Officers _____
4. Nuisance wildlife control operator (NWCO) _____
5. Police dispatch _____
6. Department of Health Office (County) _____
7. Physician and local emergency room _____
8. NYSDEC regional office and NYSDEC Dispatch _____
9. NYSDEC Special Licenses Unit in Albany _____ (518) 402-8985, <http://www.dec.ny.gov>

IV. Issues of Importance to Licensed Wildlife Rehabilitators

As you work on improving your skills and knowledge of wildlife rehabilitation, use reference materials and resources wisely. Some manuals may have formulas that are not quite up to date. Be careful what you read on the internet as some websites may give out incorrect information. Ask for advice from experienced rehabilitators and/or your veterinarian if you have questions about whether information is current or valid.

Identification of animal species

Accurate identification of an animal species is critical. If you don't know what the animal is, it will be almost impossible to rehabilitate it well. You must identify it correctly to decide on captive housing, formulas for juveniles and adult diets, and to determine release criteria. In addition, the specific identity of an animal may give you and your veterinarian important clues about which parasites or diseases might be expected.

Field guides and other books will help you learn the identity of many species. Experienced rehabilitators, local birders and bird clubs can give you invaluable help in identifying local species. NYSDEC wildlife biologists can also be of assistance in identifying difficult species. Taking classes on mammalogy or ornithology, and visiting natural history museums can help immensely. The Cornell Laboratory of Ornithology (159 Sapsucker Woods Rd. Ithaca, NY 14850, 1-800-843-2473, <http://www.cornellbirds@cornell.edu>) offers many online services including "Birds of North America" and an excellent home study ornithology course that many rehabilitators have found helpful. Appendix VII provides a list of helpful reference materials.

Individuals vs. populations

As a wildlife rehabilitator, you may find yourself in the middle on issues between individual animals and populations. Wildlife biologists and conservationists view animals as members of dynamic, interacting populations inhabiting differing environmental niches. This view often de-emphasizes the role of the individual animal, and focuses on the preservation of quality habitat and genetically viable populations. Conversely, animal welfare advocates, the veterinary community, and the public will more often focus on the individual animal. This view may not consider the complex issues of long-term population stability for animals in the wild. It is important for the rehabilitator to appreciate that both points of view are valid.

The majority of cases involving injury and death to individual wild animals are probably of little significance to the stability of large populations of wildlife. However, large scale mortalities due to lead poisoning, botulism, fowl cholera, oil spills, etc. can potentially threaten entire local populations of animals or even small populations of threatened or endangered species.

The degradation, destruction, and elimination of wildlife habitats for the short-term benefit of growing human populations is by far the most significant cause of endangerment to wildlife populations. Individual wild animals suffer from the impact of human activities when they are attacked by domestic animals, hit by cars, fly into windows, or are poisoned by chemicals. And even though wildlife rehabilitation more often deals with individual animals, a valid argument can be made that the resources

used to save an individual might actually help more animals in the long run if the resources are directed toward the preservation of healthy habitats.

Major conflicts can arise when making treatment decisions about wild animals with regard to the “population” and “individual” viewpoints. We can assume that there are never adequate resources to address all needs, so decisions must often be made on how those limited resources should be utilized. As a result, wildlife rehabilitators may have to prioritize their care-giving. You may find that you have so many calls that it is impossible to give the best possible care to every injured or sick animal that is presented. You must decide which animals are likely to live with the skill and technology you have at your disposal. Inevitably, people working with wildlife become drawn into discussion of why one species is more “important” or “valuable” than another. Importance is a subjective term. Ethical absolutists might contend that each living creature is of equal importance. Conversely, wildlife biologists might assign a low importance to introduced pest species like the rock dove (pigeon), European starling, or the native herring gull whose populations have mushroomed because of human alterations to the environment; and they might assign a much higher “value” to individuals of endangered species.

Deciding what is important

One of the realities of wildlife rehabilitation is that you will need to develop priorities. Wildlife rehabilitators spend a great deal of time and effort on common species of animals that have more easily adapted to the human presence, and therefore are more commonly found when in distress. Species that are more removed from humans by their habitat requirements, or those that are less familiar to the public, come in for help less often. This means that red-tailed hawks and screech owls are found in rehabilitation a great deal more often than upland sandpipers or timber rattlesnakes. Common animals like squirrels and rabbits can typify the resource dilemma. If you have limited time and money, how much of that will be consumed in saving animals that may be considered pest species? How do you fairly handle your resources when faced with an abundance of non-native birds? Since many introduced species are very hardy, your chances of releasing a starling are probably better than releasing a pileated woodpecker. But the woodpecker is native and relatively uncommon. What is the most efficient use of your energies and resources? Some rehabilitators question the value of rehabilitating game species when after treatment and release they may not survive the next hunting season. However, it is important to remember that by honing one's skills and techniques on more common species, one develops the competency of care necessary to rehabilitate rarer animals.

It is imperative that each licensed wildlife rehabilitator or rehabilitation facility consciously develops a set of standards and priorities that reflect their own philosophies, facilities, budgets and time constraints. Your facility will also be subject to the limitations of working in a field that is regulated by government agencies. For example, rehabilitation of endangered species is closely regulated by the appropriate governmental authorities. Developing your standards will take time and deliberate thought. However, the effort may be your key to success when dealing with a large scale emergency situation.

Preventing disease transmission

A zoonotic disease (or "zoonoses") is, by definition, any disease that can be transmitted from other animal species to people. These diseases can be caused by bacteria, viruses, fungus, parasites, or other agents. Examples of zoonoses include rabies, tularemia and the *Baylisascaris* parasite. Licensed wildlife rehabilitators must be alert to these problems in order to protect themselves, their families, and other

animals in their care. Protection of the public's health requires a licensed wildlife rehabilitator to be fully aware of, and knowledgeable about, zoonotic diseases.

Potential for disease is everywhere, and there is no single key to alert you to zoonoses. A squirrel you have taken in for care might have tularemia. You might come in contact with the tick species that carries Lyme disease. An ailing gull with diarrhea might have a minor problem – or it could be carrying a Salmonella infection that could make you very ill.

What can you do to help limit the risk of disease? New animals should be quarantined or if necessary examined by a veterinarian. The quarantine should last as long as the incubation period for the most common diseases in that species. For example, if an animal that is exposed to distemper can take up to 21 days to appear sick, then the quarantine period for distemper susceptible species should last at least that long. Bedding material, cleaning implements and feed bowls for the quarantine area should be separate from the regular in-patients. Quarantine animals should be treated last and after caring for healthier animals in a facility. This practice can help insure that bedding, food and water bowls, or your hands, shoes and clothes do not carry contamination from sick animals to those that are healthy.

Excellent hygiene is a critical practice in rehabilitation to prevent disease transmission. Use disinfectants (see Husbandry: Disinfection, page 23) properly and regularly on cages, food dishes, bedding, etc. If you can't disinfect it, throw it away! Wear disposable gloves. Don't launder your rehabilitation clothes or animal bedding with your family clothes, especially if you have children, elderly family members, or someone taking immunosuppressive medication in the house. If at all possible, use a separate washing machine for rehabilitation materials. Don't ever go barefoot in animal care areas. Do not eat, drink or smoke anything while you are caring for wildlife. Don't use family bathroom facilities to bathe or care for sick animals. Wash hands frequently. Know something about the likely diseases some species will carry. For example, many reptiles shed salmonella in their feces without appearing ill.

Remember to inform your family doctor that you are a wildlife rehabilitator. You can download a handy wallet card at http://www.nwhc.usgs.gov/outreach/wallet_card.jsp. This card explains that you are a wildlife professional and lists diseases that you may encounter in your work that a human doctor might not otherwise have on their list of concerns. Your doctor can help insure you are current on your tetanus shots.

Your personal physician may be able to help you decide on the advisability of prophylactic pre-exposure vaccination against rabies. The human diploid rabies vaccine is reasonably safe, but fairly expensive. If you handle wild mammals in an area where rabies is relatively common, the pre-exposure vaccination may well be worth it. If you handle RVS species (bats, skunk and raccoon) these vaccination are mandatory.

Domestic animals should be kept well away from all wildlife, as well as their old food, bedding and feces. Rehabilitators can play a significant role in protecting animal health by being knowledgeable and alert to wildlife health issues, and by communicating their findings to NYSDEC and other state agencies.

Release

Injured wildlife animals are rehabilitated with the express purpose of releasing them back into their native habitats as soon as they are healthy. It is completely unethical to release disabled animals that will

have little or no ability to compete and survive in the wild. It is part of a wildlife rehabilitator's job to continually balance eventual release versus euthanasia.

First, consider the health of the animal. It must be able to fly, swim or run well enough to perform all the life functions of a member of its species (i.e. find food and appropriate shelter, escape predators, reproduce, migrate, etc.). Second, the animal's behavior must be judged normal for its species. Animals that have been tamed or imprinted are not only unlikely to breed successfully, but are in danger of becoming problem animals with unfortunate futures awaiting them. Third, consider the location and timing for release. Wild animals must be released in the appropriate habitat, with available food, for any given time of year. You must choose a location where competition or aggression from other members of the same species will be minimized to enhance its initial survival. However, if the habitat the animal came from originally has been damaged by some large-scale event (e.g. an oil spill, or fire), then one should certainly release the animal at a suitable alternative location.

It is essential to remember that in the vast majority of cases, you cannot expect a rehabilitated animal to survive if you simply take it out into the woods and let it go. You have expended a great deal of time, energy and resources rehabilitating an animal. You will have totally wasted all that effort if you do not release as carefully as you rehabilitate! Young animals, or adults that have been in care for extended periods of time, may need to be soft-released. Provide a support system while they explore their surroundings and learn to find food, water and shelter. Young predators, in particular, need time to develop their hunting skills. Usually providing supplemental food at the release site is sufficient, but needs may vary according to the species.

Releasing animals very close to where they were found may be of particular importance under the following conditions:

1. **Adult animals.** These animals are most likely to have established territories, and to have learned the local resources necessary for survival.
2. **Social species.** For species like wolves or crows that live in family units, returning an animal to its family group may well be crucial to the animal's ability to survive.
3. **Non-migratory species.** Such species may well be territorial year round.
4. **During the breeding season.** At this time, most good territories are occupied and animals are at their most defensive against possible intruders.
5. **Rabies vector species.** If you have completed the necessary additional training, and are licensed to handle RVS, you will need to comply with the release regulations that are required with these species.

Conversely, if you are releasing young animals of migratory species, or of a species whose young disperse over a wide area, the precise location of their release may be less significant.

What if the animal cannot be released?

The question of the outcome for non-releasable animals is one of the more difficult problems licensed wildlife rehabilitators have to face. The purpose of treating wild animals is to release healthy, normal individuals back to their wild existence. Often the kindest consideration that can be made for badly injured wildlife is to opt for euthanasia early in the decision-making process. Sometimes non-releasable

animals can be placed in appropriate captive facilities. But placement in good, duly licensed situations is hard to come by, especially for common species. The decision to send an animal to spend the remainder of its life in captivity must not be taken lightly.

The U.S. Endangered Species Act and the related wildlife legislation of many states do not contain guidelines or provisions for the euthanasia of threatened or endangered species. In practice, state and Federal officials often respect the clinical judgment of veterinary and rehabilitation professionals who possess wildlife permits. However, you must contact the NYSDEC Special License Unit within 48 hours of taking possession of one of these species. After euthanasia, disposal of the animal requires approval of NYSDEC or the Federal agencies. These officials may wish to recover the entire cadaver for research purposes.

USFWS does have some very specific guidelines for the treatment of migratory birds. The Code of Federal Regulations states “You must euthanize any bird that has sustained injuries requiring amputation of a leg, a foot, or a wing at the elbow (humero-ulnar joint) or above, and/or is completely blind. You must not sustain the life of any migratory bird that cannot after medical management feed itself, perch upright, or ambulate without inflicting additional injuries to itself.” Additional details can be found at <http://www.fws.gov/permits/ltr/ltr.html>.

Sometimes schools, nature centers, museums, and colleges have the appropriate permits and will accept dead wild animals for teaching, exhibit or research purposes. Rather than simply disposing of dead animals (even common species), you may want to check to see whom you can help. Providing precise information about when and where the animal was found is important to scientists. In this way, you are establishing and fostering helpful relationships with others who are interested in wildlife issues. Please note however, that under the conditions of your NYS Wildlife Rehabilitation License you may give dead animals only to individuals who themselves have the appropriate licenses for possession. It is illegal to give or sell the bodies of dead wild animals to people for taxidermy purposes.

Decisions about captive placement of permanently non-releasable animals should be based on many factors, including the facility, the animal’s temperament and its rarity. In addition, such animals may only be placed with individuals who have the necessary valid state (and if applicable, Federal) permits. You must determine if a licensed facility with the required space and expertise to give the animal proper care is available.

Ideally, a non-releasable animal will become part of an organized educational, breeding or research effort. The temperament of an animal must be suited to a life in captivity. Although personality traits are difficult to assess in reptiles and amphibians, there is a great deal of individual variation among birds and mammals. Some highly strung wildlife species will never adjust to life in a captive situation. They will be living in constant stress from confinement and the presence of people. Constant stress can be physically damaging, and these animals may exhibit stereotypical or self-destructive behaviors. It is inhumane to condemn these individual animals to such a fate, and euthanasia should be most seriously considered as the kindest option. Rare species are in more demand for exhibition, breeding or research, so most licensed wildlife rehabilitators would agree that greater efforts should be made to find a suitable captive situation. These placements are somewhat easier to accomplish with rare animals.

V. Husbandry

Housing

NWRA's Minimum Standards for Wildlife Rehabilitation and their Principles of Wildlife Rehabilitation contain a listing of minimum cage size standards (Appendix VII). Some of the species listed do not occur in New York State, but they may be similar to other groups of animals that do live here. The dimensions recommended for cages are minimum sizes. It may often be of benefit to animals to have much larger enclosures. The caging recommendations are divided into dimensions for juveniles, recovering adults, and pre-release conditioning cages. The recommended minimum standards will be necessary if/when you apply for a USFWS permit to rehabilitate federally regulated bird species.

Rabies vector species cages require double wire, double doors, and must be approved by the NYS Health Department and NYS Department of Agriculture and Markets. RVS cages cannot be used to house any other type of animal.

There are many other factors to be considered in addition to the size of the enclosure when designing cages. There is no such thing as one cage that can be used for any kind of animal, although well thought out designs can be used for species with similar requirements. It is more useful to have a specific type of animal in mind when you are designing a cage, and to talk with people who have worked with the species before. Outside cages must shelter animals from the elements, and provide shade during hot summer months.

Keep in mind that a totally functional cage during the summer may present a whole set of different problems if you live in an area that receives heavy snowfall or ice storms. Fresh, ice-free drinking water must be available at all times; bird bath heaters, or heated outdoor dog bowls (with wire wrapped cords) can be invaluable during the winter months.

Cages can be made of many materials, and what you choose depends on what species you will be housing. In general, wire caging is not appropriate for housing most species of migratory birds, especially birds of prey. Birds housed in such a fashion can damage their feathers to the point of being non-releasable. Conversely, waterfowl and many mammals can be housed in wire cages, as long as you keep track of their foot health. Upright portions of cages can be made of wood, metal, fiberglass or other materials. Nontoxic materials (for example, untreated lumber) must be used for dens and platforms if you will be housing animals that tend to chew on their cage furnishings (rabbits, squirrels or other rodents).

Flooring of a cage must be made of something that can be cleaned. Concrete is easy to clean, but is very cold in the winter, and can be very hard on an animal's feet. Soil or sand floors can be excellent, but the top few inches will become contaminated with feces, and possibly parasites, and must be cleaned out regularly. The species and number of animals housed in a cage will determine how frequently this must be done. Some require weekly cleaning, others only several times a year. **Please note that because of the dangers of the raccoon parasite *Baylisascaris*, no other species should ever be housed in a cage that raccoons have occupied.** The exception is stainless steel cages that have been sterilized with a blowtorch.

Cages must also be designed to ensure the psychological well-being for an animal. You must provide isolation from sights and sounds that might frighten or stress a wild animal. Exposure to people must be minimized and you must never house a prey species (e.g. rabbit), in a cage where it could hear, see or smell a nearby predator (e.g. fox). Stress from exposure will compromise their recovery.

Cage design should also provide safety from free ranging predators. Raccoons, foxes, opossums, owls and other predators/scavengers will likely wander around your cages during the night. They will kill and eat your recovering wildlife if possible, and raccoons, in particular, are adept at reaching into cages and pulling animals over to kill them. Providing solid or wire cage bases, double wired walls, and other precautions help avoid such tragedies. Keep in mind that domestic pets are seen as frightening predators to wildlife, so good rehabilitation always limits any physical or visual contact between pets and wildlife.

Extending the walls of cages well below ground level (preferably 3 feet), or at a minimum, wiring in the bottom of a cage, will also be necessary if you are going to house digging species like foxes or woodchucks. If you can design walls to angle in below the ground, you will have eliminated the possibility that an animal will dig out and escape.

Some animals will need soft bedding provided for insulation and warmth, and to help prevent pressure-type ulcers (bedsores). Whatever material you use for bedding, it must be clean and ravel-free. Loosely woven materials can entangle an animal's tail, limbs, tongue, digits, etc., cutting off circulation and causing serious problems. You do not want to make mistakes that cause an already compromised animal further damage. Great care must also be exercised if you are using hay/straw as a bedding material. Many wild animals (especially water birds and raptors) are extremely sensitive to fungal respiratory diseases (such as Aspergillosis) in captivity, and hay/straw often exposes animals, already in a stressed condition, to mold spores. These conditions can be fatal, so it is best to avoid causing problems by never bringing hay/straw into an indoor facility. Animals that need hay for food such as ungulates (e.g. deer) should be housed some distance from other patients.

Cage “furnishings” will depend on the species being housed. Dens and places to hide must be provided without preventing you from seeing the animal when you need to check on it. You must supply opportunities for perching, climbing, foraging and exploring, while keeping in mind that you may need to go in to catch the animal for examination or treatment. Water sources used for drinking and swimming must be provided in such a way that accidental drowning is prevented. Always be aware of species-specific needs, while balancing your ability to observe and handle the animal when necessary.

Disinfection

Environmental sanitation is an important component in caring for captive animals. When there is a potential for zoonotic disease transmission, strict personal hygiene and good cage sanitation protocols are critical. This includes prompt removal of all fecal material, wearing gloves and washing hands between handling of animals or cleaning cages, as well as control of insects and rodents.

There are many types of disinfectants available and it is important to read product labels prior to use. Scrubbing cages clean prior to disinfection is required, because most disinfectants will not work if there are organic materials present. Label instructions should be closely followed to insure proper dilution and effectiveness, and to insure the safety of the animals. Remove animals from their cages prior to disinfection. Disinfectants should be allowed to remain on surfaces (cages, dishes etc.) for at least 10 – 20 minutes to allow maximum efficacy. Then the solution should be rinsed away thoroughly with

several rinses of fresh water. Many disinfectants can be harmful to animals if they are not thoroughly rinsed away. Also note that many products are more effective when used with hot water.

Disinfectants fall into several broad categories. These include phenolics, halogens, quaternary ammonium compounds, and biguanides. An ideal disinfectant should 1) have broad spectrum activity (it kills a wide range of disease organisms), 2) be non-toxic and non-irritating to animals and humans, 3) be non-corrosive to surfaces, 4) be inexpensive and easily available, and 5) not be readily inactivated after application. No single disinfectant has all of these properties, so different agents may be more suitable for individual situations. Ask your veterinarian what products he/she likes and recommends.

Several terms you may come across include:

Antiseptics. Chemical agents applied to living tissue (such as wounds) to prevent growth of microorganisms.

Bactericide. A chemical agent that kills bacteria.

Disinfectants. Chemical agents applied to inanimate objects or surfaces to kill disease-causing microorganisms. This includes bacteria, fungi and at least some viruses.

Fungicide. A chemical agent that kills fungi.

Germicide. A broad term applied to chemical agents that kill microorganisms.

Sterilization. The process of complete destruction of all forms of microbial life.

Viruscide. A chemical agent that kills viruses.

Characteristics of Selected Disinfectants

Disinfectant Category	Alcohols	Aldehydes	Biguanides	Halogens: Hypochlorites	Halogens: Iodine Compounds	Oxidizing Agents	Phenols	Quaternary Ammonium Compounds (QAC)
Sample Trade Names	Ethyl alcohol Isopropyl alcohol	Formaldehyde Glutaraldehyde	Chlorhexidine Nolvasan® Virosan®	Bleach	Betadine® Providone®	Hydrogen peroxide Peracetic acid Virkon S® Oxy-Sept 333®	One-Stroke Environ® Pheno-Tek II® Tek-Trol®	Roccal® Diquat® D-256®
Mechanism of Action	•Precipitates proteins •Denatures lipids	•Denatures proteins •Alkylates nucleic acids	•Alters membrane permeability	•Denatures proteins	•Denatures proteins	•Denature proteins and lipids	• Denatures proteins • Alters cell wall permeability	• Denatures proteins • Binds phospholipids of cell membrane
Advantages	•Fast acting •Leaves no residue	•Broad spectrum	•Broad spectrum	•Broad spectrum •Short contact time •Inexpensive	•Stable in storage •Relatively safe	•Broad spectrum	• Good efficacy with organic material • Non-corrosive • Stable in storage	• Stable in storage • Non-irritating to skin • Effective at high temperatures and high pH (9-10)
Disadvantages	•Rapid evaporation •Flammable	•Carcinogenic •Mucous membranes and tissue irritation •Only use in well ventilated areas	•Only functions in limited pH range (5-7) •Toxic to fish (environmental concern)	•Inactivated by sunlight •Requires frequent application •Corrosive •Corrodes metals •Mucous membrane and tissue irritation	•Inactivated by QACs •Requires frequent application •Corrosive •Stains clothes and treated surfaces	•Damaging to some metals	• Can cause skin and eye irritation	
Precautions	Flammable	Carcinogenic		Never mix with acids; toxic chlorine gas will be released			May be toxic to animals, especially cats and pigs	
Vegetative Bacteria	Effective	Effective	Effective	Effective	Effective	Effective	Effective	YES—Gram Positive Limited—Gram Negative
Mycobacteria	Effective	Effective	Variable	Effective	Limited	Effective	Variable	Variable
Enveloped Viruses	Effective	Effective	Limited	Effective	Effective	Effective	Effective	Variable
Non-enveloped Viruses	Variable	Effective	Limited	Effective	Limited	Effective	Variable	Not Effective
Spores	Not Effective	Effective	Not Effective	Variable	Limited	Variable	Not Effective	Not Effective
Fungi	Effective	Effective	Limited	Effective	Effective	Variable	Variable	Variable
Efficacy with Organic Matter	Reduced	Reduced	?	Rapidly reduced	Rapidly reduced	Variable	Effective	Inactivated
Efficacy with Hard Water	?	Reduced	?	Effective	?	?	Effective	Inactivated
Efficacy with Soap/Detergents	?	Reduced	Inactivated	Inactivated	Effective	?	Effective	Inactivated

? Information not found

DISCLAIMER: The use of trade names does not in any way signify endorsement of a particular product. For additional product names, please consult the most recent Compendium of Veterinary Products.

REFERENCES: Linton AH, Hugo WB, Russel AD. Disinfection in Veterinary and Farm Practice. 1987. Blackwell Scientific Publications; Oxford, England; Quinn PJ, Markey BK. Disinfection and Disease Prevention in Veterinary Medicine, in: Block SS, ed., Disinfection, Sterilization and Preservation, 5th edition. 2001. Lippincott, Williams and Wilkins: Philadelphia.

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Nutrition

There is a great deal known about the nutrition of wild animals, and many diets for captive wildlife have been published. The most important consideration about an animal's diet is whether or not the animal will eat the food you prepare. Animals in captivity are often sick or stressed, and you may need to call more experienced rehabilitators to learn what stimuli will work to get a particular wildlife species eating. It is sometimes necessary to feed an animal through a stomach tube (gavage) if it cannot eat for itself. Passing a stomach tube is not a difficult skill, but doing it incorrectly can get fluid into an animal's lungs and be fatal. Your veterinarian, or more experienced rehabilitators, can help you to learn proper techniques.

If you can't feed an animal properly, you won't be able to help it. Adult animals are often easier to feed than babies. The adults have already acquired all their skills in obtaining food, and if you supply them with a balanced diet they will eat, you should have no problem. In addition, minor imbalances in nutrition are often of little importance with adult animals undergoing rehabilitation. The animals are not rapidly growing, and they will be in captivity for only a short period. Once you know what a wild animal eats in the wild, it is conceptually not too hard to craft a captive diet. Predators eat smaller animals, so you can feed them small, whole animals. But where will you get them? It is generally not a good idea to feed road-kill animals to your predators. First, it is illegal to pick up such road-kills without a special license from NYSDEC. Second, such dead animals can be sick or heavily parasitized and may pass those things along to your rehab animals. Laboratory type rodents can be purchased online and can be stored in a separate freezer until you need them. Some species may eat commercial dog or cat foods.

Captive rabbits and rodents can be fed foods designed for domestic rabbits or laboratory animals. (See <http://www.thebrc.org/diet.htm> or http://old.cvm.msu.edu/documents/Abood_PDF/Rabbits.pdf for more information about diets for rabbits). A variety of vegetables can be provided as a supplement, but should not be the sole food utilized. Good quality alfalfa hay is an excellent source of nutrition, but should never be used if it smells musty or moldy.

If you're not sure what to feed an animal, talk to your veterinarian and to other rehabilitators. Herbivorous reptiles may require calcium supplementation if housed long term. If you are using frozen fish to feed any species, it should be carefully thawed in the refrigerator and supplemented with vitamin E and thiamine to prevent deficiencies from cropping up.

The most important nutrient is water. Fresh, clean water must be available at all times. The water dishes must be shaped so that each particular species can drink from them (depth, size, etc.). Weakened, sick, or bandaged animals must be watched closely--they may fall into their water dish and be unable to get out and drown. A baby animal should not be given water dishes until it is big enough to eat by itself. Dishes should be placed out of the way of perches or areas where they can become contaminated with feces.

The next issue is whether or not you are feeding the animal enough calories daily so that it can maintain itself and heal its wounds. Many foods found at the market are labeled with their caloric content. The best way to assess if the animal is getting enough to eat is to weigh the animal regularly. Small animals should be weighed every day or two. Larger animals can be weighed less frequently. Be watchful when feeding animals housed in a group to make sure that all the animals have sufficient access to food and water.

Other than caloric intake, it is critical that animals get enough calcium (Ca) and phosphorus (P) and that the Ca to P ratio is about 2:1. That means that there should be about twice as much calcium in the diet as phosphorus. An imbalance in the ratio of Ca to P will cause what is known as “metabolic bone disease,” a serious, usually irreversible malformation of the animal’s skeleton. Young, rapidly growing animals are the most sensitive to this problem, so getting their diets right is crucial. Vitamin supplements will be beneficial to the animal’s growth and development.

Just feeding cow’s milk to nursing baby mammals is not appropriate. The composition of milks varies greatly between species. Pet stores carry commercial substitutes for dog and cat milk, and calf and goat milk replacers are often available from feed stores. Specialized formulas exist for most mammals and are available from dealers such as Fox Valley. Several of the publications of the NWRA (<http://www.nrawildlife.org>) and IWRC (<http://theiwrc.org>) focus on the preparation of appropriate milk substitutes for most native species.

Medical math

Provided in part by:
Project Wildlife, San Diego, CA
<http://www.projectwildlife.org>.

In wildlife rehabilitation, you will find that you need mathematical skills for calculating drug dosages, converting measurements from the English system (pounds and ounces) to the metric system (grams and milliliters), and calculating nutritional requirements. It is necessary to have a good pocket calculator at your disposal. Scales that measure in the metric units of kilograms and grams can be purchased for use in your rehabilitation facility and will aid you with your calculations. Appropriate drug dosages for the species you are working with can be found in a formulary or online. Dosages can vary widely between species and you should use the dosage that is given for the species you are handling, or the most closely related species.

Drug dosage calculations

In order to calculate dosages, you need three pieces of information:

1. Weight of the animal in kilograms or grams
2. A drug dosage for the species you are working with (often written as mg/kg or ug/kg)
3. The concentration of the medication you have (often written as mg/ml)

COMMON ABBREVIATIONS AND CONVERSIONS		
lb	=	pound
µg	=	microgram
mg	=	milligram
g	=	gram
kg	=	kilogram
ml	=	milliliter
cc	=	cubic centimeter
l	=	liter
1 lb	=	454 g
1 kg	=	2.2 lb
1000 g	=	1 kg
0.001 kg	=	1 g
1000 mg	=	1 g
0.001 g	=	1 mg
1000 µg	=	1 mg
0.001 mg	=	1 µg
1 ml	=	1 cc

The first step is to calculate the milligrams of drug needed for the animal:

$$\text{weight of animal in kg} \times \text{drug dose in mg/kg} = \text{mg of drug needed}$$

But WAIT! Drugs generally come as a liquid not as a powder and we need to know how much volume contains that many milligrams of drugs. This is where the concentration comes in.

The second step is to calculate the amount of liquid you need to give the animal to get the proper amount of medication.

$$\text{mg of drug needed} \div \text{concentration of medicine in mg/kg} = \text{volume of liquid needed in ml}$$

In Summary:

$$\frac{\text{animal weight in kg} \times \text{drug dose in mg/kg}}{\text{drug concentration in mg/ml}} = \text{volume to administer in ml}$$

You will need to do these calculations for the rehabilitation licensing examination because learning these techniques will be critical for the survival of your patients. **Work through the example provided on page 29.** If you have difficulty calculating drug dosages confer with your veterinarian or another knowledgeable rehabilitator before administering any medication.

Stress

External influences that cause an animal to either attack or try to get away (fight or flight) are termed stressors; they exert stress on the animal. Captive wild animals are stressed, and often receive so many stressors that they can actually cause harm. For licensed wildlife rehabilitators, stress management for the patient is key. In trying to escape or avoid the stresses, the animal may injure itself or you. Increased stress may make the animal less interested in food, and definitely makes the animal more susceptible to disease. Too much stress makes an animal's immune system function less well, and weakens its ability to fight off infection and/or parasites. Secondary problems from stress and handling in captivity can cause serious complications and render animals as non-releasable.

One of your main jobs is to do whatever you can to reduce or eliminate the stress on your wild patients. This may include such things as minimizing handling, providing sight barriers (so that the animals cannot see other cages or people), limiting noise and talking, and giving medications in the food rather than handling the animal to give injections. Appropriate caging is important here. Cage features, such as hide boxes and plant materials, can help alleviate stress.

Triage and first aid

Triage is the process of sorting out the medical priorities of your patients in order to decide which cases will be treated first and which can wait. As hard as it is, you will probably have to make an occasional, conscious decision not to treat a problem, or in fact to euthanize an animal, because there are other higher priorities.

In giving first aid, it is always tempting to treat the most visible injury. However, in reality, a broken limb or large wound is not often immediately fatal. Remember the "ABCs" of emergency medicine. A is for airway--make sure the animal can breathe. In serious cases, you may need to insert a tube into

MEDICAL MATH

Frank is a wildlife rehabilitator and he received a baby opossum from the public this morning that was caught by a cat. The baby opossum has a few puncture wounds from the cat's teeth but otherwise seems to be healthy. Frank decides to give the opossum an antibiotic to help with infection. It has a concentration of 5 mg/ml. Frank consulted with a veterinarian and knows that for a baby opossum, 10 mg/kg is the appropriate dosage. Frank weighs the opossum and it weighs 1 pound. How much drug will the opossum get?

Step 1. Calculate the opossum's weight in kilograms

$$1 \text{ pound} \times \frac{454 \text{ g}}{1 \text{ pound}} = 454 \text{ g} \text{ and then } 454 \text{ g} \times \frac{1 \text{ kg}}{1000 \text{ g}} = 0.454 \text{ kg}$$

Step 2. Calculate amount of drug needed

The drug dose is 10 mg/kg

$$0.454 \text{ kg} \times 10 \text{ mg} / \text{kg} = 4.54 \text{ mg}$$

Due to rules of multiplying fractions the kilogram units cancel out and you are left with just milligrams.

Step 3. Calculate the amount of liquid

The antibiotic only comes in a concentration of 5 mg/ml.

$$4.54 \text{ mg} \div 5 \text{ mg/ml} = 0.9 \text{ ml}$$

Due to the rules of multiplication of fractions, the units of mg cancel out and you are left with just MILLILITERS.

Conclusion

Frank draws up 0.9mL of antibiotic and gives it to the baby opossum.

its trachea (breathing tube) to allow it to breathe. This is not for beginners. B is for bleeding--stop any major bleeding. Manual pressure applied directly over the wound will usually make bleeding stop within a couple of minutes. Ideally, you'd have a sterile bandage between your gloved hand and the wound. C is for cardiopulmonary--is the animal's heart beating? Is the beat regular? Often injured animals are in physiologic shock. This should be suspected if the animal is immobile, and if its gums and the inside of its mouth (mucous membranes) are much whiter than normal. Animals in this state need to be warmed and given fluids rapidly. Ideally, the fluids should be given IV (intravenous - in a vein), but other routes can be helpful.

Beyond the ABCs, most injuries can wait at least a little while. Most animals, particularly adults, can be severely stressed by the transport and handling. Use common sense. Minimize the examination time, or divide it into short segments to allow recovery time in between. Have all the materials you need for examination and treatment ready before handling them. Cover their head and keep talking to a minimum. In some animals that are not critically sick, an initial quiet period to recover from transport is often beneficial. Animals with respiratory problems are particularly prone to collapsing from the stress of handling. Don't touch open wounds with ungloved hands. The bacteria on your skin can cause infections. Any open wounds need to be covered with moist, sterile dressings, using warmed sterile saline to wet the gauze. The animal must be handled in such a way that its injuries don't become any worse. Don't apply force to broken limbs. Immobilize broken limbs with bandages. Keep the animal in a darkened, warm, quiet location for an hour or two until a more experienced person or your veterinarian can examine it.

Fluid therapy math

1. Fluid therapy

There are several different types of fluids available for fluid therapy and you should work with a veterinarian to decide what types of fluid should be used in each circumstance. Common fluid types that you should be familiar with include:

- Lactated Ringer's solution
- Ringer's solution
- Normosol-R
- 5% Dextrose
- 0.9% Sodium Chloride

Fluid therapy is a very common treatment in wildlife rehabilitation and can be extremely helpful if used correctly. There are two major components of fluid therapy: rehydration and maintenance. **Rehydration** is used to make a dehydrated animal return to normal hydration status. **Maintenance** fluids are the fluids required every day to replace routine losses.

Fluids can be given orally (in the mouth) or subcutaneously. Subcutaneous (abbreviated SQ) means under the skin so you will have to use a needle and a syringe to do this. A subcutaneous injection can be given under loose skin. Please see the section on how to give SQ injections to mammals and birds as the procedure for each is slightly different. Consult a veterinarian to determine when it is appropriate to give oral versus SQ hydration therapy.

When you first receive an animal, one of the things you should look for is dehydration.

BE CAREFUL! Even seemingly docile animals can resent having your hands near their face and may bite without warning. **ALWAYS use GLOVES!** Remember many diseases can be transmitted from the mouth of an animal to you!

Common signs of dehydration in animals include:

1. A persistence of the skin tent – To do a skin tent, gently pinch a small amount of skin around the neck or along the back of a mammal and gently pull up. Release the skin and see how long it takes to go back to lying flat along the mammal. This takes practice to assess so work with a veterinarian or a skilled wildlife rehabber to learn this technique.
2. Sunken eyes.
3. Pale, tacky mucus membranes – The easiest mucus membranes to assess are the gums in mammals and the inside of the mouth in birds. A bird’s mouth will appear to be stringy when dehydrated.
4. Cool extremities.
5. Dry, wrinkly skin in birds – Be sure to move the feathers aside to assess the skin properly. A skin tent test can also be used on skin of a bird, make sure it is skin that is normally covered by feathers.

HOW MUCH IS THE ANIMAL DEHYDRATED?

Signs in Mammals	% Dehydration
None	< 5%
Slight increase in skin tent collapse time (1-2 secs)	6%
Prolonged skin tent (2-3 secs), sunken eyes	6-8%
Very delayed skin tent (3-5 secs), sunken eyes, dry and pale mucus membranes	10-12%

IMPORTANT: Death can occur at dehydration levels over 12%

2. Rehydration vs. maintenance fluids

The goal of rehydration is to slowly replace the fluid deficit in a dehydrated animal by giving supplemental fluids over a 24 hour period. The goal of maintenance fluid therapy is to supply the animal with enough water to replace the water it loses daily to urine, feces, sweating, and panting. Normally an animal takes care of this requirement by drinking water on its own. Some animals do not drink water and get all of their water from their food. **Maintenance fluids for mammals AND birds are**

approximately 40ml/kg per day or 0.04ml/g per day¹. Young animals have a higher fluid requirement, up to 135mL/kg per day.

Large volumes of fluid can take a while to be absorbed SQ, so adequate time in between giving fluids is necessary. Allow at least 6 hours in between giving fluids for absorption, which means the maximum number of times you can give fluids in one day is **4 times a day**. Also, do not use the same site again if there is another available site to give SQ fluids. Using a site over and over again can cause trauma to the tissues. **In BIRDS do NOT put more than 5-10mL/kg per injection site of SQ fluids.**

Remember when you are calculating fluid therapy that if your animal can't eat or drink on its own, include both the maintenance fluids and the rehydration needs in your calculation or the animal will always be behind in fluid! Visit <http://wildliferehabber.com/rehab-data/fluid-and-electrolyte-therapy> for more information on fluid therapy.

Work through the examples provided in the *Fluid Therapy Math* box on the following page. You will need to do these calculations for the rehabilitation licensing examination because learning these techniques will be critical for the survival of your patients.

¹ Steinhart, Lani A, 1999. Avian Fluid Therapy. Journal of Avian Medicine and Surgery. 13(2), 83-91.
<http://www.jstor.org/stable/30135210?seq=8&>

FLUID THERAPY MATH

Part 1. A squirrel with head trauma comes into your wildlife rehabilitation facility and when you examine it, you notice that the skin tent that you gently pinched up and let go over its shoulders takes a long time to collapse and that the eyes appear sunken. You lift one side of its lip to look at the gums and they are very pale. How dehydrated is this animal?

Answer: Based on the table given on page 32 the symptoms indicate that the squirrel is in the 10-12% range for dehydration, indicating a serious condition.

Part 2. You weigh the squirrel and determine that it is 500 grams. Assuming that it is 10% dehydrated, how much fluid (ml) is needed to compensate for dehydration?

$$500g \times 0.10 = 50g = \mathbf{50\ ml\ of\ fluid}$$

Remember that 1g of fluids has a volume of 1 ml. Therefore 50 ml of fluid are needed to compensate for dehydration.

Part 3. Recognizing that the squirrel has head trauma and may not be capable of eating or drinking for today, you recognize that you must also provide fluid sufficient for maintenance. How much fluid is needed for maintenance?

$$500g \times 0.04ml/g = \mathbf{20ml\ of\ fluid}$$

Part 4. If you plan to administer fluids 3 times today, how much fluid will you give SQ for each dose?

$$\frac{\text{dehydration fluids} + \text{maintenance fluids}}{\text{number of doses each day}} = \text{volume of fluids SQ per dose}$$

$$\frac{50ml + 20ml}{3\ doses} = \frac{70ml\ total\ for\ day}{3\ doses} = \mathbf{23.3ml/dose}$$

Part 5. A 5 kg raccoon is 5% dehydrated. You are going to administer fluids 3 times a day. How much fluid will you give at a single time? Remember to include maintenance fluids.

$$5kg = 5000g$$

$$\text{Dehydration} : 5000g \times 0.05 = 250g = 250ml$$

$$\text{Maintenance: } 5000g \times 0.04ml/g = 200ml$$

$$\text{Fluid dose: } (250ml + 200ml)/(3\ doses) = 150ml/dose\ administered\ 3\ times\ per\ day$$

Subcutaneous fluid administration

Subcutaneous means “under the skin” and involves placing a small volume of liquid between the skin and the muscle so that the body can absorb it slowly over time. Before you give a subcutaneous (SQ) injection you will need to be shown how by a licensed veterinarian or a technician. Subcutaneous injections are not necessarily difficult, but poor technique or lack of knowledge could lead to the death of your animal. The information below is provided as supplemental material and is not meant to be a guide on its own. Before administering subcutaneous fluids consider the following: needle size, injection site, and needle placement.

Needle size

Needle gauge is a measure of needle size. A larger gauge number actually means a smaller needle. If your animal is smaller use a smaller needle. A needle that is too large causes unnecessary pain and can cause damage to tissue. Refer to the chart below to understand typical uses of different sized needles.

NEEDLE GAUGE AND USE		
Gauge	Size	Typical use
30	Tiny	Insulin needles; small songbirds fluids or IM/IV injections
27	Very small	Small birds or small mammals
25	Small	Birds or small mammals
22	Medium	Large raptors or medium sized mammals
20	Large	Adult mammals
18	Quite large	Only use with large adult mammals or to fill syringes

Injection site

For **mammals**, SQ injection sites are between the shoulder blades or along the upper part of a limb. These areas generally have a lot of loose skin to hold the fluid.

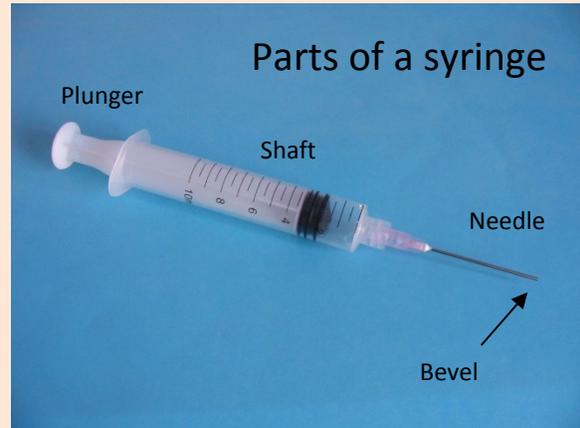
For **birds**, the best SQ injection site is the loose skin around the thigh. Remember to not place more than 5-10mL of fluid per injection site. This might mean you have to give fluids more often to keep the volumes small enough.

Needle placement

When giving a SQ injection it is important to make sure that you have not accidentally hit a blood vessel. **Before you give an injection**, check for proper placement of the needle by gently drawing back on the plunger to check for blood flowing into the syringe.

SQ INJECTION INSTRUCTIONS

1. Clean the area with cotton soaked with alcohol.
2. Pinch the skin and lift it up slightly.
3. Slide the needle under the skin with the bevel facing up. Needle should be almost parallel to the animal's body.
4. Draw back on the plunger. If blood or air is drawn into the syringe, withdraw the needle and start over. Blood indicates you are in a blood vessel. Air indicates you have gone all the way through the skin.



<http://commons.wikimedia.org/wiki/File:Syringe2.jpg>

6. If no blood is seen or air is aspirated, inject the medication or fluid.
7. A bleb (bubble) should be seen under the skin after the injection.
8. Place a sterile gauze pad over the needle site and remove the needle from the animal.

Spring "orphans" – birds

A Federal permit is required for most birds! It is not required for non-native species, such as the rock pigeon, European starling and house sparrow; as well as game species such as turkey, grouse, and pheasant. The NYSDEC license only permits you to handle migratory birds if you also have the Federal permit (Appendix IV).

Each spring, most rehabilitators are besieged with calls from concerned members of the public who have found baby animals. We all know that handling these calls can take a lot of your time. To actually rehabilitate most birds, you will need a Federal license or must refer the caller to someone who does hold one. But in the public's mind, you are the person in your community who knows and cares about animals. It is important that you give out correct information. If you can't, make sure that you can provide telephone numbers for nearby rehabilitators or nature centers who are willing and able to answer the public's questions. In point of fact, most of the young animals are not orphaned or in need of human help. But the way in which you convey the correct information to the public is an important tool in public education (and a significant public relations tool). Do not belittle people asking for help. They are not trained professionals like you. Often it is their first encounter with wildlife, and their intentions are good.

First, here are a few facts. The young of some species of native birds leave the nest before they can fly. Precocial species (ducks, quail, etc.) are mobile and self-feeding earlier. They leave the nest within

hours of hatching and follow the mother about. Although these young may get separated from the female, they are most often picked up by children or misunderstanding adults simply because the adult bird ran or hid when the people approached.

With altricial species (songbirds, owls, etc.), young birds will leave the nest a week or more before they can fly. These relatively helpless young fledglings hide under bushes or in shrubbery. Periodically, the adult birds will fly in and feed them. It is usually these young birds, such as robins and blue jays, that children find and "rescue" in the spring. What people don't understand is that these birds are exactly where they are supposed to be, behaving naturally.

Undoubtedly if left alone, the parent birds will return to feed the young within a half hour or so. The finders may assure you that they watched for parents, but that no adult birds appeared. Of course the adult birds, with their acute senses, saw the people and were waiting until these perceived intruders left. What's the best thing to do? In the great majority of cases, the right answer is to tell the people to put the baby bird back exactly where it was found and go away. The parents will take care of it.

What about the situation in which a baby bird has fallen out of the nest? Assuming that it's active and not terribly hypothermic (cold), the right answer is to put it right back into the nest A.S.A.P. **It is a myth that birds will smell your touch and reject the baby. Birds have a very poorly developed sense of smell.** If you can't find the nest, it's OK to put the baby into another nest of the same species (if the chicks are not too much different in age). Remember that the adult birds can't count. Your local scout troops, nature centers and birdwatchers can help you locate nests. This technique often works beautifully for hawks and owls as well as songbirds, greatly decreasing your workload and stress level, as well as being better for the birds. Survival skills are best taught by a parent of the same species; we humans don't have this ability.

Similar advice pertains if a nest with young has fallen out of a tree due to a storm or an overzealous arborist. Simply secure the nest back in the tree as close as possible to its original location (a few feet one way or the other won't matter). If the nest was destroyed, a reasonable substitute can be made by lining a wire frame or plastic berry basket with twigs and grasses then securing this artificial nest in the tree. If you use a solid container, like a plastic margarine dish, poke drainage holes in it or it will collect water and drown the young.

Many of the baby birds are brought home by either children or cats. Adults need to understand that placing the baby bird back in the bush may not be enough. They have to educate their children to keep far away from the baby so that the parents can come down and take care of it, and they have to keep their cat(s) indoors for at least a couple of days--until the bird begins to fly.

In educating the public, one must convince adults they need to explain to their children not to try to "rescue" wild babies. Rehabilitators often hear people say, "I had to chase this bird for 5 minutes (or more!) before I could catch it to help it. Boy could it run!" Somehow, you have to sensitively tell these people (who just spent a lot of time and effort to catch the bird and bring it to you for help) that catching the bird might not have been the best thing, and that now they must spend more of their time to put it back! People usually understand when you explain how hard it is to raise baby birds and that no human can do as good a job as the real parents.

Certainly, there are times when young birds are injured or are genuinely orphaned. At these times, the best answer is to tell the people to get the bird to you rapidly. The two critical factors are warmth and food. It is important that these birds have body temperatures of 104 -108 F. This means that room

temperature is not enough unless the bird is quite well feathered and almost big enough to fly, or unless the weather is quite warm.

There are many diets described for young passerines. But for a short term substitute, any finely ground, canned dog food will do (or broken up dog kibbles soaked in water until softened). Simply place small bits of food far back in the bird's mouth when they gape. Typically, passerines need to be fed all they will consume about every 15-20 minutes from dawn to dusk. If young birds do not gape for food, the likelihood is that you are dealing with a species that doesn't normally gape (such as a dove), or the baby is hypothermic or ill. If hypothermia is the problem, 15-20 minutes of gentle warming should markedly improve the activity and attitude of the nestling. Doves, swifts, woodpeckers and some other birds solicit food very differently, and have very different dietary requirements. Species identification is, therefore, critical in devising proper diets; use the references provided in this guide (Appendix VII), or ask other licensed wildlife rehabilitators and local nature centers for help.

Most small native birds will defecate just after each feeding. The fecal material should be removed immediately to prevent the young bird from soiling itself and damaging feathers.

Do not give nestlings any oral water. They will almost invariably aspirate (inhale liquid into their lungs) leading to a fatal pneumonia. Baby passerines have no way to drink fluids in the nest, and get all their water metabolically. If a bird is dehydrated, you may use a paint brush to drop water on the tip of the beak and the bird will swallow the water itself, or administer additional fluids under the skin. Some baby bird formula is liquid, but is placed strategically in the correct area of the mouth via a syringe or tube.

Spring “orphans” – mammals

Many of the same rules that apply to baby birds also apply to baby mammals. Most are not orphaned and can be put back where they were found. Some species are precocial (mobile and fully furred, such as fox) and some are altricial (hairless and helpless, such as rabbits). They all need to be kept warm. Although all baby mammals drink milk, the composition of milks varies greatly. A basic rule of thumb for formula feeding is to feed about 25% of the body weight in kilograms per day. This amount is then DIVIDED over the number of feedings a day. For example, a 100 gram baby squirrel would get 25 ml of formula divided over about 4-6 feedings. Rabbits need fewer feedings a day (2-3) to mimic the natural feeding cycle (rabbits only nurse a few times a day and are left unattended otherwise). The animal should not be allowed to overeat. During the first day or so of feeding, it is best to start with a diluted formula at about 25% strength, and then work up to feeding full strength. For example, if you calculate that you will give 4 ml volume each feeding, you would start with 1 ml of full strength formula mixed with 3 ml of fluids. If the animal tolerates this well, after a few feedings increase to 50% strength (2 ml of formula to 2 ml of fluids) then 75% (3ml of formula to 1ml of fluids) , then regular strength. Animals should be weighed daily and hydration assessed at each feeding. More detailed information can be found in the Humane Society Wildlife Care Basics guide at <http://www.discoverhsvma.org/hsvmawildlifewpfacebook?AspxAutoDetectCookieSupport=1>.

Rehabilitation hand books (www.nwrawildlife.org) are valuable because they condense a large volume of information on proper diets and weaning ages for most common species. It is important to remember that most baby mammals must be stimulated by the mother in order to urinate and defecate. After each feeding, the genital and anal area should be gently rubbed with a cloth or gauze pad moistened with warm water. This will stimulate the babies to urinate and defecate. Without such stimulation, baby mammals sicken quickly and die. Do not allow your pets to lick these wild babies. Remember that in

mammals smell is usually the most important sense for imprinting, finding food, and other critical behaviors, whereas, vision is usually the most important sense for birds.

Taming and imprinting

It is well known that the tamer a wild animal is towards people, the less likely it is to survive and function well in the wild. Wild animals that consistently seek out human contact may be hit by cars, shot or considered pests or presumed rabid. One of the rewards of doing wildlife rehabilitation is getting to experience close contact with the animals, but the more contact you have, the worse it often is for the animals.

You can avoid unnecessary taming by making sure you raise animals with others of their own species, minimizing unnecessary handling or exposure to people, and trying to avoid all contact once the young are feeding independently.

Imprinting is a process by which some birds (and perhaps some mammals) "learn" what species they are. This was originally documented by Lorenz (1935) who showed that newly hatched ducklings would follow instinctively the first large, moving object they saw and behave as though that object was their mother. In a number of species this early, rapid learning seems to last for the animal's whole life. When it comes time for that animal to seek a mate, it seeks out something that looks like the animal or object upon which it imprinted. There is some question as to whether true imprinting occurs in mammalian species. In general, precocial species imprint much more rapidly and at a much younger age than altricial species. Imprinting is a natural and normal process that is important to the survival of wild species, but problems can occur if animals imprint on inappropriate "parents."

Obviously, if hand-raised young birds or mammals imprint on the rehabilitator, this may render them incapable of surviving in the wild. First of all, they will seek human company rather than that of their own species. It seems these animals "think" they are people. When it comes time to reproduce, imprinted birds often seek to mate with people. Although this sounds amusing, such animals are often killed, because unknowing people think they are being "attacked" by a wild animal. In addition, such imprinted animals are not effective members of their species because they cannot reproduce. Some people speculate that the release of such imprinted animals may do harm, since they may compete with wild animals for food and other resources.

Glossary

Acute. Happens suddenly.

Altricial. Bird hatched in helpless condition, usually naked, eyes closed, cared for by parents in nest (examples: robin, raptors, and herons).

Anemia. Low number of red blood cells; characterized by weakness and pale mucus membranes.

Anesthesia. Insensibility to pain induced by drugs.

Anorexia. Lack of appetite.

Antiseptics. Chemical agents applied to living tissue (such as wounds) to prevent growth of microorganisms.

Apnea. Cessation of breathing.

Aspiration. Inhalation of fluid into bronchi and lungs.

Ataxia. Uncoordinated movements, off balance.

Bactericide. Chemical agents that kill bacteria.

BID. Twice daily; every 12 hours.

Brancher. (slang) Young bird not fully fledged, out of nest hopping on branches.

Brood. Number of birds hatched from single clutch of eggs; also, to provide warmth and shelter for young birds.

Bumblefoot. (slang) Foot lesions in birds.

Carapace. The dorsal shell (top) of a turtle.

Carnivore. Flesh-eating animal.

Carrion. Dead and decaying animals.

Cast. Undigested parts of prey (hair, bones, claws, teeth, etc.) eaten by raptors, which are regurgitated in the form of pellets (see pellet); can also be used as a verb.

Cere. Fleishy base of upper mandible in some birds (example: raptors, pigeons).

Cestodes. Flatworm parasite (example: tapeworms).

Chronic. Continuing a long time.

Closed fracture. When the bone at the fracture site has not broken through the skin.

Clutch. The number of eggs laid in a single nesting.

CNS. Central nervous system.

Comminuted fracture. When the bone at the fracture site is splintered into more than two pieces.

Conspecifics. Other individuals of the same species.

Coprophagy. Ingestion of feces; this is normal and necessary in rabbits and some rodents.

Crepuscular. Refers to animals which are most active around dusk and dawn.

Chronic wasting disease. An untreatable and fatal brain and nervous system disease found in deer, elk and moose

Crop. An enlargement of the esophagus in the neck area in some species of birds.

Cyanotic. Bluish/purple color of mucus membranes due to low oxygen levels in the blood.

Dehydration. Deprived of water or fluids.

Disinfectants. Chemical agents applied to inanimate objects or surfaces to kill disease causing microorganisms, including bacteria, fungi and at least some viruses.

Distal. Away from the center of the body; (Example: distal fracture of the femur, fracture occurs in section of femur farthest from the hip).

Diurnal. Animals which are most active during the daylight hours.

Dorsal. Pertaining to, or situated on, the back.

Ectoparasite. Parasite found on the outside of the body.

Edema. Swelling or thickening of tissues caused by fluid leaking from blood vessels.

Emaciated. Thin, starved.

Endoparasite. Internal parasites (most types of worms, protozoa).

Enteric. Pertaining to the intestines or gastrointestinal tract.

Epidemic. Rapid spread or increase in prevalence of a disease through an animal population.

Ethology. The study of the behavior of animals.

Euthanize. The act of putting to death in a manner that ensures rapid loss of consciousness and minimizes pain and suffering.

Fever. Elevation in body temperature due to disease.

Fledgling. A baby bird that has matured sufficiently to leave the nest; however, it still may not be able to fly.

Fungicide. Chemical agents that kill fungi.

Gavage. Force feeding through a flexible tube placed down the esophagus.

Germicide. A broad term applied to chemical agents that kill microorganisms.

Gestation. Time period from conception to birth of young mammals.

GI. Referring to the gastrointestinal tract through which food passes.

Gizzard. Muscular portion of stomach in birds; food is ground up here.

Glottis. Opening to the trachea.

Habitat. The native environment of an animal.

Hacking. Soft (slow) release technique for returning animals to the wild (often used for raptors).

Hatchling. A newly hatched baby bird.

HBC. Hit by car.

Hemorrhage. Bleeding (usually refers to profuse bleeding).

Herbivore. Animals that feed on plants.

Hyper. More than normal.

Hyperthermia. Having an abnormally elevated body temperature, usually from being kept in too warm an environment and not being able to cool itself adequately; not the same as fever.

Hypo. Less than normal.

Hypothermia. Having an abnormally low temperature, such animals should be warmed before any food is given.

Hypovolemic. Abnormally low blood volume.

Immature. Usually refers to animals which are old enough to be independent of their parents, but not yet old enough to reproduce.

Imping. Replacement of damaged feathers with undamaged feathers by rehabilitator.

Imprinting. Process usually occurring early in a bird's life in which the bird learns to identify and relate to its parental species.

Incubation. The action of warming eggs to the temperature necessary for embryo development.

IO. Abbreviation for intra-osseous, meaning within a bone.

IV. Abbreviation for intra venous, meaning into or within a vein.

Juvenile. Young bird out of the nest and able to care for itself but has not completed its post-juvenal molt.

Kcal. (kilocalorie, or Calorie). An energy unit equivalent to 1000 calories (the Calorie on most food labels refers to Calories = Kcal).

Keel. The protruding part of a bird's breastbone (sternum) to which the large flight muscles attach.

Lateral. Denotes a position towards the side of the body.

Litter. A group of young mammals born together.

Marsupial. Pouched mammals (kangaroo, opossum, etc.).

Medial. Situated towards the midline of the body.

Nares. Nostrils.

Necropsy. Autopsy or post mortem, examination of the body after death.

Necrosis. Death of individual cells or a localized area (decay).

Nematodes. Unsegmented worm with cylindrical body, often parasites.

Neonate. A newborn.

Nestling. A baby bird too young to leave the nest, still dependent on parents, often unable to maintain its body temperature without parents incubating.

Nocturnal. Refers to animals which are most active at night.

Omnivore. An animal that eats both animal and plant food.

Open fracture. Bone at the fracture site has broken through the skin.

Ornithology. The study of birds including classification, distribution, ethology and conservation.

Parasite. An animal that gains some advantage by living on or in another species.

Parenteral. Term used for the delivery of medications by routes other than oral; subcutaneous, intramuscular or intravenous.

Paresis. Severe weakness or partial paralysis of a limb.

Passerine. Birds belonging to the order *Passeriformes* (sparrow-shaped); largest order of birds including approximately 5,100 species.

PCV. Packed cell volume, volume of red blood cells in blood.

Pectoral muscles. One of two major flight muscles in birds, breast muscles.

Pellet. Roundish mass of bone and fur regurgitated by raptors (see **cast**).

Peristalsis. Contraction and relaxation of GI muscles forcing food downward.

Photoperiod. The proportion of hours of light to hours of darkness in the daily cycle.

Plastron. The ventral (bottom) shell of a turtle.

Plumage. Entire feathery covering of a bird.

Precocial. Birds which leave the nest soon after hatching usually having strong legs, open eyes and are more responsive to external environment (examples: quail, ducks, killdeer).

Preening. Use of the bill or beak to clean and align feathers.

Proventriculus. Portion of a bird's stomach, for partially digesting food before going to the gizzard.

Proximal. Close to the body; (Example: a fracture of the proximal humerus is a fracture of the section of the humerus close to the shoulder).

QID. Four times daily; every six hours.

Radiograph. X-ray.

Raptor. A bird of prey, (examples: hawk, owl), which catch and eat live prey.

Rehab. (slang) Anything related to wildlife rehabilitation.

Rehydration. The process of restoring body fluids to normal levels.

Roost. Sleeping location where birds congregate to sleep.

RVS. Rabies vector species (see NYSDEC listings).

Septicemia. Invasion of bacteria in the blood stream.

Shock. Collapse of circulatory function due to severe blood loss, toxins, etc.

SID. Once daily; every 24 hours.

Soft release. Slow, gradual release of animals back into the wild.

Sterilization. Process of complete destruction of all forms of microbial life.

Talons. Specialized claws of a bird of prey.

Thermoregulate. An animal's ability to maintain its normal body temperature.

Thiamine. Vitamin B1 (should be supplemented in fish-eating birds).

TID. Three times daily; every eight hours.

Trachea. Passageway of air to and from lungs for breathing.

Trematodes. Parasitic flatworm with suckers (synonymous with fluke).

Triage. Process of setting medical priorities.

Tube feeding. Same as gavage.

Uropygial gland. Oil gland, located above the base of the tail in most birds.

Vaccination. Injection of a preparation of killed or altered microorganisms intended to provide immune system protection from an infectious disease or parasite. Modified live vaccines are produced by chemically altering the microorganism so it is no longer capable of producing disease. Because the microorganism is still living, on occasion, some modified live vaccines have produced disease in vaccinated animals. Killed vaccines cannot produce disease, but often may not be as effective at stimulating the immune system.

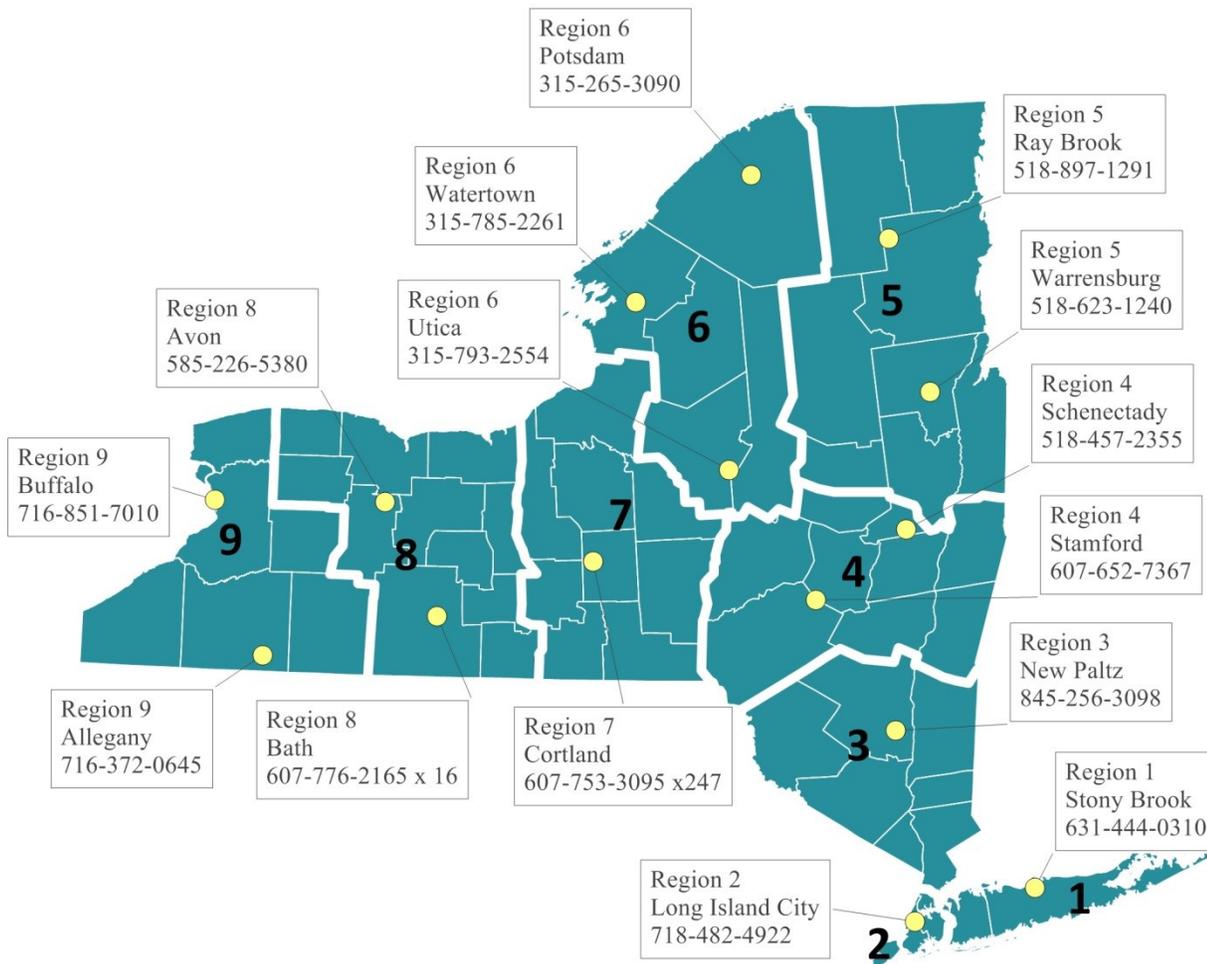
Ventral. Pertaining to the belly or underside.

Virucide. Chemical agent that kill viruses.

Weanling. A young mammal that is of the appropriate age to begin eating solid foods.

Zoonoses. Diseases of animals which may be transmitted to people.

Appendix I. NYSDEC Regional Wildlife Office Locations



Region Counties

- 1 Suffolk, Nassau
- 2 Manhattan, Bronx, Queens, Kings (Brooklyn) and Richmond (Staten Island)
- 3 Sullivan, Ulster, Orange, Dutchess, Putnam, Rockland, Westchester
- 4 Montgomery, Otsego, Delaware, Schoharie, Schenectady, Albany, Green, Rensselaer, Columbia
- 5 Franklin, Clinton, Essex, Hamilton, Warren, Fulton, Saratoga, Washington
- 6 Jefferson, St Lawrence, Lewis, Oneida, Herkimer
- 7 Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga, Tompkins
- 8 Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne, Yates
- 9 Allegany, Cattaraugus, Chautauqua, Erie, Niagara, Wyoming

Appendix II. Relevant Sections of Environmental Conservation Statutes & Regulations

Wildlife Rehabilitation Information - 6 NYCRR Part 184. Wildlife Rehabilitation Regulations

184.1 Purpose

(a) The proper care of distressed wildlife requires special knowledge and facilities not possessed by the general public. The purpose of this Part is to establish a specially trained group of individuals, collectively called Wildlife Rehabilitators, to provide for the care of injured and debilitated wildlife so that such wildlife may be returned to the wild. Appointed by the Department of Environmental Conservation and licensed pursuant to Environmental Conservation Law Section 11-0515, the Wildlife Rehabilitator is authorized to possess wildlife found by other persons and provide necessary aid. By encouraging that injured or debilitated wildlife be placed in the care of specially trained Wildlife Rehabilitators, it is possible to achieve more humane care and greater expectation that distressed wildlife can be returned to the wild.

(b) Nothing in this Part authorizes, or is intended to authorize, a licensed Wildlife Rehabilitator to practice veterinary medicine in violation of Article 135 of the Education Law. A rehabilitator rendering gratuitous services in case of emergency should not attempt diagnosis or treatment beyond his or her level of skill and training.

184.2 Definitions

For purposes of this Part:

- a) Commissioner means the Commissioner of Environmental Conservation.
- b) Department means the Department of Environmental Conservation.
- c) License means the license to possess wildlife issued pursuant to Environmental Conservation Law Section 11-0515.
- d) Wildlife means animal life existing in a wild state.
- e) Wildlife Rehabilitator means Class II, Class I and Assistant Wildlife Rehabilitator.
- f) Wildlife Rehabilitation means the practice of providing care for injured or debilitated wildlife, including their capture, housing, feeding, emergency treatment and release to the wild.

184.3 Qualifications for appointment

a) Class I Wildlife Rehabilitator and Class II Wildlife Rehabilitator must:

- 1. be over the age of 16 years, a resident of New York, and of good character and reputation in the community as judged by two character references written by persons not related to the applicant or to each other;
- 2. not have been convicted of or pleaded guilty to a violation or misdemeanor under the Environmental Conservation Law, or settled and compromised a civil liability therefore, nor have been convicted of any misdemeanor or felony within the previous three years;

3. receive a grade of 80 percent or higher on a written examination administered by the department and designed to test knowledge in the field of wildlife rehabilitation; and
4. be interviewed by a regional department employee responsible for the wildlife rehabilitation program to assess the applicant's proficiency in wildlife rehabilitation.

b) The Class II Wildlife Rehabilitator, in addition to meeting the qualifications listed in subdivision a) of this section, must have been a Class I Wildlife Rehabilitator for at least two years. Persons already certified as Class II Wildlife Rehabilitators prior to the date this regulation was promulgated will continue to be certified at the Class II level.

c) An Assistant Wildlife Rehabilitator must:

1. be nominated by a Class II Wildlife Rehabilitator and may assist only that nominating Class II Wildlife Rehabilitator; and
2. meet the same character requirements as a Class I Wildlife Rehabilitator.

184.4 Additional criteria of appointments

a) The Class II Wildlife Rehabilitator may be assisted, by and provide training to, one or more Assistant Wildlife Rehabilitators upon approval by the department of an outline of training methods and procedures to assure control over the activities of appointed assistant wildlife rehabilitators, but the Class II Wildlife Rehabilitator must be responsible for the proper performance of duties of all Assistant Wildlife Rehabilitators whom he or she nominated, trained, and employs.

b) A Class II Wildlife Rehabilitator may nominate an Assistant Wildlife Rehabilitator who was trained by, and previously assisted, another Class II Wildlife Rehabilitator. In such case it shall be at the discretion of this Class II Wildlife Rehabilitator whether or not to require further training.

184.5 Appointment

Persons who meet or exceed the qualifications for appointment pursuant to section 184.3 or 184.4 of this Part will be issued the appropriate wildlife rehabilitator license: Class I, Class II or Assistant Wildlife Rehabilitator.

184.6 Duties

a) The Wildlife Rehabilitator must:

1. practice wildlife rehabilitation in a humane and professional manner;
2. consult licensed veterinarians as necessary to ensure that proper care is administered to injured or debilitated wildlife;
3. not require payment for the care or treatment of wildlife. Nothing herein, however, will prevent the wildlife rehabilitator from accepting voluntary donations made toward rehabilitation services;

4. comply with applicable provisions of the Environmental Conservation Law and rules and regulations adopted pursuant thereto, and with the department's instructions concerning methods of wildlife rehabilitation, reporting requirements and any conditions contained in his/her license;
5. display in a prominent place the license provided by the department. A Wildlife Rehabilitator Identification Card must be carried by the permittee when in possession of wildlife afield;
6. submit to the department in a timely manner all required records and reports properly executed;
7. notify the department at least 90 days in advance of moving his/her place of operation to a new location;
8. allow authorized department employees to inspect his/her wildlife rehabilitation operations and records at any reasonable time; and
9. participate in training programs required by the department.

b) Additionally, the Wildlife Rehabilitator may distribute, if appropriate, to persons who submit wildlife to them any material supplied by the department relating to wildlife rehabilitation.

184.7 Revocation of license.

a) The department may revoke a license issued pursuant to this Part if:

1. a Class I or Class II Wildlife Rehabilitator has failed to perform duties as provided in section 184.6 of this Part; or
2. an Assistant Wildlife Rehabilitator no longer is endorsed by the nominating Class II Wildlife Rehabilitator or the nominating Class II Wildlife Rehabilitator no longer possesses a valid license issued pursuant to this Part.

Environmental Conservation Law 11-0515 : Licenses to collect, possess or sell for propagation, scientific or exhibition purposes.

Section 3: The department may also issue a revocable license to possess distressed wildlife for rehabilitation purposes. The department may adopt regulations concerning the qualifications, appointment and duties of wildlife rehabilitators and the procedures for license issuance and revocation.

Appendix III. License Conditions

Class I Wildlife Rehabilitation License Conditions

These are the conditions that appear on Wildlife Rehabilitation Licenses issued by the NYSDEC. These conditions shall be adhered to by all licensees. Failure to obey these conditions could result in the revocation of the license.

1. WRL - Authorization

The licensee is authorized to provide rehabilitative care to injured, orphaned or distressed wildlife, except no rabies vector species (bats in the Family Vespertilionidae, raccoon (*Procyon lotor*) or striped skunk (*Mephitis mephitis*) may be possessed or rehabilitated pursuant to this license. Such care may include capture, possession, transport, housing, feeding and release to the wild. This license does not authorize the licensee to rehabilitate species that are not "wildlife" under the Environmental Conservation Law.

2. WRL 1 - Volunteers Authorized

The licensee may allow volunteers to assist at his or her wildlife rehabilitation facility provided that such volunteers do not handle any wildlife.

3. WRL - All - Practice of Veterinary Medicine Prohibited

The licensee shall not practice veterinary medicine as defined in the New York State Education Law Article 135.

4. WRL - All - Consultation with Licensed Veterinarians

The licensee shall consult licensed veterinarians, as necessary, to ensure that proper medical care is administered to injured, orphaned or distressed wildlife.

5. WRL - All - Licensee Shall Carry Copy of ID Card on Person

The licensee must carry, on their person, a Wildlife Rehabilitator Identification card, provided by the NYSDEC, when in possession of wildlife while afield.

6. WRL - All - Humane and Professional Practice of Wildlife Rehabilitation

The licensee shall practice wildlife rehabilitation in a humane and professional manner.

7. WRL - All - Release of Rehabilitated Animals to the Wild

Wildlife that has been successfully rehabilitated shall be immediately released to the wild as per Condition: WRL – All - Release of Rehabilitated Animals to the Wild Requirements, of this license. This license does not authorize permanent possession of wildlife.

8. WRL - All - Release of Rehabilitated Animals to the Wild Requirements

When releasing wildlife to the wild, the licensee shall make every reasonable attempt to release the animal in suitable habitat at or near the location where it was taken from the wild and where the licensee has permission from the landowner to release the wildlife. This license does not authorize the licensee to trespass on private property.

9. WRL - All - Transport of Mammals into Nassau and Suffolk Counties Restrictions

Mammals held under this license may not be transported into Nassau or Suffolk Counties without written approval from the Regional Wildlife Manager:

NYSDEC Region 1 Headquarters
SUNY at Stony Brook
50 Circle Road
Stony Brook, NY 11790 -3409

10. WRL – All – Mute Swan Restrictions

Live Mute Swans (*Cygnus olor*) obtained pursuant to this license shall only be:

- a) released at the point where the mute swan was picked up from the wild;
- b) euthanized; or
- c) given to a person who has been issued a valid license to possess live wild mute swans.

11. WRL – All – Possession of Captive Bred Animals of the Genus Alces, Cervus or Odocoileus Prohibited if Rehabilitating Wild WTD or Wild Moose

The licensee shall not possess any captive bred animals of the Genus Alces, Genus Cervus or Genus Odocoileus if he or she rehabilitates or possesses any wild white-tailed deer or wild moose under this license.

12. WRL – All – Taxidermy Prohibitions

The licensee shall not engage in the art or operation of preparing, stuffing, and mounting the skins or other parts of animals of the the Genus Alces, Genus Cervus or Genus Odocoileus if he or she rehabilitates or possesses any wild white-tailed deer or wild moose under this license.

13. WRL – All – Disposition of Non-Releasable Wildlife

Wildlife deemed to be incapable of surviving if released to the wild shall be euthanized or it may be transferred to an individual who possesses a valid license to possess such live, non-releasable animal.

14. WRL – All – Disposition of Animal Carcasses

Wildlife held pursuant to this license that dies or is euthanized shall be:

- a) donated to an individual who possesses a valid license to possess such specimens; or
- b) immediately buried or incinerated; or
- c) utilized as food for wildlife held pursuant to this license.

15. WRL – All – Compliance With Special Licenses Unit Instructions

The licensee shall comply with specific instructions from the Special Licenses Unit regarding the release, transfer or euthanasia of any animals held pursuant to this license.

16. WRL – All – Importation of Wildlife into New York State Without Written Permission

Prohibited The licensee shall not import or accept wildlife from outside New York State pursuant to this license without written permission from the

Special Licenses Unit
NYSDEC Headquarters
625 Broadway
Albany, NY 12233

17. WRL – All - USFWS Permit Requirement for Rehabilitation of Migratory Birds

The licensee shall not rehabilitate Migratory Birds, as listed in Title 50 of the Code of Federal Regulations Section 10.13, without a corresponding Federal Permit issued by the United States Fish and Wildlife Service.

18. WRL – All – Mandatory Notification of Receipt of Endangered or Threatened Species

The licensee shall notify the

Special Licenses Unit
NYSDEC Headquarters
625 Broadway
Albany, NY 12233-4752

within forty-eight (48) hours of the collection or acquisition of any endangered or threatened species by calling (518) 402-8985, day or night.

19. WRL – All – Live Animal – Safeguarding Public From Attack by Animal

The licensee shall exercise due care in safeguarding the public from attack by any animal held pursuant to this license. Failure to do so is a crime pursuant to New York State Agriculture and Markets Law Article 26, Section 370 which provides that: any person owning, possessing or harboring a wild animal or reptile capable of inflicting bodily harm upon a human being, who shall fail to exercise due care in safeguarding the public from attack by such wild animal or reptile, is guilty of a misdemeanor, punishable by imprisonment for not more than one year, or by a fine of not more than five hundred dollars, or by both.

20. WRL – All – Exhibition Prohibited

The licensee shall not exhibit wildlife held pursuant to this license.

21. WRL – All – Charge for Service Prohibited

The licensee shall not require payment for the care or treatment of wildlife.

22. WRL – All – Participation in Training Programs

The licensee shall participate in training programs required by the department.

23. WRL – Weekly Maintenance of Wildlife Rehabilitator Log

The licensee shall keep and maintain an accurate record known as the Wildlife Rehabilitator Log on a weekly basis.

24. WRL – Reporting Requirement

The licensee shall submit to the

Special Licenses Unit
NYSDEC Headquarters
625 Broadway
Albany, NY 12233

an accurate and complete Wildlife Rehabilitator Log and Wildlife Rehabilitator Log Tally prior to December 1 in each year except in the year when the license expires and the licensee is renewing his or her license. In the year that the licensee is renewing his or her license, the licensee shall comply with the requirements of license condition: GC – License Renewal.

General Conditions – Apply to ALL Authorized Licenses

1. GC – Licensee Shall Read All Conditions

The licensee shall read all license conditions prior to conducting any activities authorized pursuant to this license.

2. GC – License is Not Transferrable

This license is not transferrable and is valid only for the person identified as the licensee.

3. GC – Licensee Responsible for Federal, State or Local Permits/Licenses

The licensee is responsible for obtaining any and all necessary, corresponding Federal, State or local permits or licenses prior to conducting any activity authorized pursuant to this license.

4. GC – Reasons for Revocation

This license may be revoked for any of the following reasons:

- a) licensee provided materially false or inaccurate statements in his or her application, supporting documentation or on required reports;
- b) failure by the licensee to comply with any terms or conditions of this license;
- c) licensee exceeds the scope of the purpose or activities described in his or her application for this license;

- d) licensee fails to comply with any provisions of the NYS Environmental Conservation Law, any other State or Federal laws or regulations of the department directly related to the licensed activity;
- e) licensee submits a check, money order or voucher for this license or application for this license that is subsequently returned to the department for insufficient funds or nonpayment after the license has been issued.

5. GC – Licensee Shall Carry Copy of License

The licensee shall carry a copy of this license or a document provided by the department, if relevant, when conducting activities pursuant to this license.

6. GC – Licensee Shall Notify of Change of Address

The licensee shall notify the Special Licenses Unit in writing, by mail or email, within five (5) days of the official change of residence.

7. GC – Licensee is Liable for Designated Agents

If designated agents are authorized pursuant to this license, the licensee shall be liable and responsible for any activities conducted by designated agents pursuant to this license or any actions by designated agents resulting from activities authorized by this license.

8. GC – Licensee Renewal

The licensee shall submit a written request for the renewal of this license prior to the expiration date listed on the license. The licensee shall include accurate and complete copies of any required reports with their renewal request. This renewal paperwork shall be sent to:

Special Licenses Unit
NYSDEC Headquarters
625 Broadway
Albany, NY 12233-4752

This license is deemed expired on the date of expiration listed on the license.

Notification of other licensee obligations

MN– Licensee is Liable

The licensee shall be liable and responsible for any activities conducted under the authority of this license or any actions resulting from activities authorized by the license.

MN – Access by Law Enforcement

The licensee shall allow representatives of the NYSDEC Division of Law Enforcement to enter the licensed premises to inspect his or her operations and records for compliance with license conditions.

Trespassing Prohibited

This license is not a license to trespass. The licensee shall obtain permission from the appropriate landowner/land manager prior to conducting activities authorized pursuant to this license.

Appendix IV. Pertinent Federal Laws and Agencies

Laws are administered by the United States Department of the Interior Fish & Wildlife Service (USFWS).

For New York State residents, license applications to hold animals covered by any of these statutes must be obtained from:

Special Agent-in-Charge
US Fish & Wildlife Service
Hadley, MA 01035
Telephone: 413-253-8643
<http://www.fws.gov/>

1. Migratory Bird Treaty Act

This act makes it illegal to possess any migratory bird, its nest, egg, or feathers. It is under this law that rehabilitators may be permitted to handle migratory birds. A “special purpose permit” application form must be obtained from the Special Agent-in-Charge. Separate special purpose permits are required to handle bald eagles or other federally threatened/endangered species.

2. The Lacey Act

This law makes it a federal violation to import or export across state or national boundaries any animals taken in violation of the laws of the state of origin. This statute almost never applies to rehabilitators. But, conceivably, if you accepted for treatment a bird or animal that was captured illegally in another state you could be prosecuted under the Lacey Act. Also, your NYS Wildlife Rehabilitation License does not allow you to accept animals from outside New York State.

3. The Endangered Species Act

This act provides special federal protections for species threatened with extinction. A variety of birds, mammals, reptiles, amphibians, fish, invertebrates and plants are listed as protected. Those known to occur in New York are listed on the state’s website (<http://www.dec.ny.gov/animals/7494.html>). New York rehabilitators can handle any of these species on an emergency basis. But you must call the NYSDEC Special Licenses Unit and inform them that you have the animal within 48 hours (518-402-8985 day or night).

For anyone planning continued or extensive work with endangered species, an additional “special purpose permit” is required from the USFWS.

4 The Bald Eagle Protection Act

This act provides specific protection to bald eagles and has been extended to protect golden eagles. Anyone wishing to work with these species, whether for rehabilitation, education or research, must obtain a specific special purpose permit from the Special Agent-in-Charge. New York State statute ECL 11-0537 also provides additional protection for eagles.

Law administered by the Department of Commerce National Oceanographic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS)

Marine Mammal Protection Act

Strict laws and regulations protect all marine mammals (whales, dolphins, seals, sea otters). No rehabilitation of these species, or sea turtles, should be considered without prior approval of:

NOAA Northeast Regional Office
55 Great Republic Drive
Gloucester, MA 01930-2276
Telephone: 978-281-9300
www.nero.noaa.gov

Regulations administered by the Department of Agriculture Animal and Plant Health Inspection Service (USDA –APHIS)

Animals which are to be kept in captivity for research or exhibited (as in zoos and nature centers) are regulated by USDA-APHIS. Special permits must be obtained from this agency before animals are acquired.

USDA-APHIS, AC
920 Main Campus Drive, Suite 200
Raleigh, NC 27606
Telephone: (919) 855-7100
aceast@aphis.usda.gov
http://www-mirror.aphis.usda.gov/contact_us/ac.shtml

Appendix V. Organizations for Rehabilitators

State Organization

New York State Wildlife Rehabilitation Council (NYSWRC)

PO Box 246

Owego, NY 13827

<http://www.nyswrc.org>

Resources: Annual seminar each fall, release - Quarterly newsletter.

National Organizations

National Wildlife Rehabilitators Association (NWRA)

2625 Clearwater Rd

Suite 110

St. Cloud MN 56301

<http://www.nwrawildlife.org>

Resources: Annual national symposium, many publications including: *Wildlife Rehabilitation Bulletin*, *Principles of Wildlife Rehabilitation*, and *Minimum Standards for Wildlife Rehabilitation*.

International Wildlife Rehabilitation Council (IWRC)

PO Box 3197

Eugene OR 97403

Telephone: (866) 871-1869

<http://theiwrc.org/>

Resources: Annual symposium, online courses, *Journal of Wildlife Rehabilitation*

Appendix VII. Websites and references

Websites

AVMA Guidelines for the Euthanasia of Animals

<https://www.avma.org/KB/Policies/Pages/Euthanasia-Guidelines.aspx>

Centers for Disease Control and Prevention (CDC)

<http://www.cdc.gov/>

Cornell Lab of Ornithology

<http://www.birds.cornell.edu>

<http://www.allaboutbirds.org/guide/search>

International Wildlife Rehabilitation Council

<http://theiwrc.org/>

New York State List of Wildlife Rehabilitators

<http://www.dec.ny.gov/animals/83977.html>

North Country Wildlife Care

<http://northcountrywildcare.org/>

Project Wildlife - provides *Project Wildlife Volunteer Handbook* with information regarding medical math and fluid therapy.

<http://www.projectwildlife.org>

Tri-State Bird Rescue & Research - provide wildlife rehabilitation and oil spill training.

<http://www.tristatebird.org>

Wild Again Rehabilitation

<http://www.ewildagain.org/>

Useful books and guides for rehabilitators

Humane Society Wildlife Care Basics

<http://www.discoverhsvma.org/hsvmawildlifewpfacebook?AspxAutoDetectCookieSupport=1>

NWRA Quick Reference

<http://www.nrawildlife.org/content/nwra-quick-reference>

NWRA/IWRC Minimum Standards

<http://www.nrawildlife.org/content/minimum-standards>

NWRA Principles of Wildlife Rehabilitation

<http://www.nrawildlife.org/content/principles-wildlife-rehabilitation-2nd-edition>

Practical Wildlife Care, 2nd Edition by Les Stocker

Hand-Rearing Birds by Laurie Gauge and Rebecca Duerr

Raptors in Captivity: Guidelines for Care and Management by Lori R. Arent

Useful field guides for animal identification

The Sibley Field Guide to Birds of Eastern North America

<http://www.sibleyguides.com/about/the-sibley-guide-to-birds/>

Peterson Field Guide to Mammals of North America

A Field Guide to Reptiles and Amphibians: Eastern and Central North America (Peterson Field Guides)

National Audubon Society Field Guides

<http://marketplace.audubon.org/products/national-audubon-society-field-guides>