Sample

Winter 1992 Vol. 15, No.4

WILDLIFE JOURNAL

Journal of the International Wildlife Rehabilitation Council



Dealing with Rabbit Diarrhea . . . . . p. 7

Wildlife Rehabilitation: A Perpetual Learning Process

Lake Tahoe Horizon Casino/Resort Lake Tahoe, Nevada

October 14-17th, 1993

Start planning now to attend our 16th Annual Conference! We are working up an exciting program for our members that will provide a balanced mix of papers, workshops, roundtables and field trips. Our hosts, Lake Tahoe Wildlife Rescue, have a wildlife care facility nestled in the Sierra Nevada mountains that you won't want to miss. We have an incredible room rate of $74 per night from the Lake Tahoe Horizon Resort/Casino! For hotel reservations and information call (702) 588-6211. Imagine gaming at world class casinos, dancing at *The Cabaret* (night club) or seeing top entertainers at the *Show Room*, playing at the video room, or hot tub, swimming or golfing at the Edgewood Golf course, boating, riding the Heavenly Valley Tram or taking a hike along Lake Tahoe or along the Tahoe Rim Trail! Join us for morning bird walks or a cruise on the M.S. Dixie, a Mississippi-style paddle boat. We may even go out at night looking for mountain beavers and owls! Come and spend a long weekend with the best in wildlife rehabilitation!

As has become our custom, we will be offering skills seminars in advance of the conference for serious rehabilitators wanting to hone their skills. Depending on facilities, we plan to offer both basic and advanced topics (Fluid Therapy, Wound Management, Necropsy) this year.

The program committee has gathered speakers from far and near with the latest wildlife rehabilitation papers, workshops, and roundtables. Join Katherine McKeever for an evening discovering the sex life of owls at our ice breaker. We will have paper sessions on wildlife care administration, veterinary care, education, and as always papers on birds, reptiles, and mammals! Our hands-on workshops, with their advance registration, are always top notch. This year we are planning workshops on handling reptiles, avian hematology, making raptor hoods, basic necropsies and more! Our roundtable discussions this year will tackle topics on blood transfusions, research priorities in wildlife rehabilitation, ethics, and more! Look for our conferencewith the completed program in June. Mark your calendar now!

The airport that services Lake Tahoe is the Reno Cannon International Airport. From there take the Tahoe Express Shuttle (14 non-stops daily) to the Lake. For reservations and current price information call them at (800) 446-6128.

The office is open from 9 a.m. to 4 p.m. Monday-Friday and can be reached at (707) 864-1761 (fax # 864-3106).

WILDLIFE JOURNAL

Winter 1992 Vol. 15, No. 4

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Editorial . . .

Continuing Education: Who Needs It?

Wildlife rehabilitators are a diverse groups of individuals providing care and rehabilitation services to several hundred species of wild animals. Many, in addition to these primary duties, also spend part of their time working to educate children and the public on wildlife concerns. In larger wildlife shelters staff have additional responsibilities in volunteer management, administration, fund raising, strategic planning, and public relations, as well as duties related to dealing with state and federal officials on wildlife issues.

From where do these people come? The answer is they have backgrounds that are far from homogeneous. We have a wide range of people from homemakers to biologists from high school graduates to MBA's--people from a wide array of backgrounds. There is no wildlife rehabilitation major in our college system. The only nationally available continuing education program specifically designed for wildlife rehabilitators is IWRC's Skills Seminar series.

In the 1980's it became apparent that there was no common starting place for discussions on what constituted quality care for wild animals undergoing wildlife rehabilitation. IWRC stumbled onto this by accident as we tried to meet another need of wildlife rehabilitators—that of providing course work for those looking beyond basic information. We developed a series of eight advanced skills seminars and found that the participants came to these classes with a wide range of skill levels and general knowledge on wildlife care. From that first year of Advanced Skills Seminars in 1983, came the development of the Basic Skills Seminar. We decided that some advanced topics, such as nutrition, were essential to beginners and incorporated topics from that series into the basic class. The Basic Skills Seminar covers key concepts in wildlife rehabilitation and has become the 'gold standard' class for people wanting to develop recognizable skills in this field. It both establishes skill levels for the novice rehabilitator and provides the bridges that allow them to get there. This program travels North America every year, and going anywhere there are 25 or more students waiting to cross that bridge. See our annual report in this issue for an update of this program.

I have seen a transformation across this continent as wildlife rehabilitation has evolved in the last thirty years. We now have two national conferences annually, numerous state organizations (which also have smaller state conferences) and some regional organizations as well. With all of these organizations offering valuable educational opportunities, one would think that nearly everyone would have taken advantage of them. While many have, there are those who believe the field is static and that what they learned in the late 1970's is all they need to know. Those of us who have been in this field since that era know that they are wrong. However, you can lead a horse to water—but you can't make it drink. Or can you?

For those rehabilitators who have learned little or nothing by avoiding membership in national organizations, or attendance at national, state, or regional conferences or seminars, life continues on the way it always has—and so does their 1978 death rate. They lose animals to problems no one else does today. Yet they are licensed just as those who do stay current in our field and further, can claim proficiency to the public, to the regulatory agencies and to

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IWRC 1992 Annual Report



ChrisMihulka

President's Message

The Philosophy of Service

Pardon me while I wax philosophic for a moment. I have no idea whether what follows reflects the feelings of the rest of the board or staff of IWRC, but I suspect so - however, to be on the safe side, let me start out by saying that I am using this forum for personal observations and what I say does not necessarily reflect the beliefs of anybody but me.

To me, this work which we all share represents the quintessence of service. Although we may each receive some expressions of gratitude from our human community, essentially those that we serve never say thank you, barely even wave goodbye and, if we've served them well, may never entangle themselves with our kind again! Gratitude is not the response we expect. Our rewards are in watching the orphans grow, grow strong, grow wild; often laughing (silently) from behind peepholes as they explore new environments in amazing and amusing ways. Our rewards are in simply having the opportunity to watch these marvelous creatures up close, in getting a glimpse of the wonder of nature not granted to many; our reward is in getting to release some, to know we are helping even those that don't make it, whether by our decision or their's.... Basically our rewards are simply the opportunity to be in service to these so-deserving animals with whom we share this magnificent world.

Some people confuse 'service' with 'sacrifice.' It is important for all of us to be doing this work from an attitude of service, not sacrifice - because a feeling of sacrifice can lead to anger, hurt (usually the true feeling underlying the anger), resentment (unexpressed anger), and eventually to burn-out. There are definite limits to how long you can continue to give from an internal feeling of sacrifice. Service implies choice - obviously no one is *making* us turn our lives upside-down in the cause of injured wildlife but it is possible from time to time, when feeling overwhelmed, to forget we are doing this by choice. Sacrifice implies 'have to', rings with overtones of martyrdom and arrogance, and is altogether an exhausting place to be. Service is full of its own rewards and more or less automatically allows us to recharge our batteries of giving.

IWRC was formed over 20 years ago to provide service to you, the wildlife rehabilitator. And service remains at the core of all our decisions -- how best to serve you. We provide information to thousands of people every year through our literature, journal, conference proceedings, and skills seminars. Our rewards are in knowing that we are helping you constantly improve the care you give wildlife -- our bottom line.

Some of you may have heard that NWRA (National Wildlife Rehabilitators Association) and IWRC were discussing the possibility of a merger. A joint NWRA/IWRC board committee has had meetings to discuss the idea. Although there are definite advantages in purchasing power and "reach" from a combined organization, there are some marked obstacles as well. Primary among them, it has become clear, are some definite differences in philosophy - "corporate culture," if you will. And primary among these differences of philosophy is that of service - mainly to members - and attitude towards money. I am not in any way implying that either group's attitude is good or bad, or even that one is 'better.' They are different and I simply want to explain why I do not believe that such a merger is likely in the near future.

I feel strongly that IWRC members get excellent service in exchange for their membership dues or literature orders. We consider the funds you send us as being held in trust for you and our goal is to ensure that you get good value in exchange for that which you invest in us. IWRC does not raise prices simply to stockpile funds but only to cover increased costs or bring you new services you have said you want. Not that the idea of having a large cash reserve isn't appealing, mind you - I just can't imagine it happening, if only because I'm sure we'd come up with some grand new idea to serve you that would wipe it out and put us right back where income balances outflow! Although we never spend

Continued on Page 2

more money than we have, and keep only a small savings account as a buffer to be sure staff gets paid, we have **never** been in financial difficulty or had conferences or programs at risk - despite the rumors that get back to us.

Don't let all my talk of how well we serve you lead you to think we are not aware that there is definitely room for improvement. One of the reasons we have tended to run late with many things from the *Wildlife Journal* to skills seminar certificates (and have much improved such things thru office efficiencies) is because we not only offer many services with minimal staffing but are always thinking of new things that might assist our members in performing THEIR service (round tables, regional/state/topic-specific conferences, constantly revising literature and seeking out new publications). We purposely have a small, hard-working board in order to maintain good levels of communication and we assist our board members in getting to some of our meetings with a small reimbursement policy in order to ensure that financial limitations are not an obstacle to getting top, productive people on-board.

NWRA recently polled its members on the idea of a merger with us - which seems an odd thing to do since the idea has been shelved at the board level. Please be assured that IWRC is keeping your needs in mind - and that it helps us in all that we do to hear from you. We are always interested in submissions for the *Wildlife Journal*, in good people to be on the board or to talk at the annual conference, in ways that our state representatives can assist you locally. Thanks again for being in service to your world and for helping us best serve you. -Louise Shimmel-

1992 Membership Report

Mary Reynolds, IWRC

Membership increased by 7% during the 1992/1993 fiscal year, with about a 4% increase in international members. The annual conference and skills seminars accounted for approximately 50% of the increases.

Geographic Breakdown:

Total membership = 1469
International members = 160

Membership Types:

Individual = 1213
Organizational = 169
Family = 82
Life = 3
Affiliate = 2

IWRC offers excellent membership benefits to its members. Beyond the delivery of *Wildlife Journal* to their door during the year, members also received a new 1992/1993 Membership Directory. Other benefits include discounts for IWRC events such as skills seminars and conferences as well as discounts on IWRC literature sales (see enclosed summer sale sheet). Many members avail themselves of another membership service, the Hotline, with questions on animal health and care. Others utilized resources in the IWRC office to link up with potential employers or internships. All and all, IWRC offers members quality services for a remarkably low annual dues. Thanks for your support.

Special Help Deserves Special Thanks!

Jan White, Executive Director

As our membership list continually grows, we found ourselves this year with such a large membership directory (over 80 pages) that we needed some special help to cover the costs of printing and mailing out. We extend our gratitude to Di Conger who donated funds to help cover the mailing costs. Juanita Heinemann, a long-time supporter and member, ugraded her membership to a life membership to assist us in garnering the special funds needed for printing. Then, in the waning hours of 1992, Al Ciscere from the *National Foundation to Protect America's Eagles*, came forward with a $1,000 donation to take us over the top on this project.

We cannot fully express how wonderful it was to have supporters come forward with these special gifts. While IWRC collects membership fees, our membership services are never quite covered with dues, primarily because of the costs of the ever-expanding *Wildlife Journal* and other membership services. Thumbs up to these giving souls!

While members don't often get appeals from IWRC for special assistance, we *always* need special acts of giving, such as these, to keep membership in IWRC the best value in the business! *Our motto is to share the knowledge and we try hard to live up to it!*

"What do you mean, Look it up?"

Research Resources For Wildlife Rehabilitators

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Introduction

Writing up a species care paper, a conference presentation or a workshop for a local rehabilitation organization takes more effort than just jotting down a few notes based on personal experience. Hands-on care and personal observation are the beginnings of research, but all research needs validation and support. The true beginnings of most research are in reading materials already published, incorporating that with one's own observations, and synthesizing a work that is original and well-supported by the writings of authorities in the field.

The big problem for most rehabilitators is knowing where to even start looking for published materials.

STEP ONE: Look to your own resources first. A rehabilitator should have a basic reference library of care manuals, textbooks, and papers accumulated from colleagues and his or her gatherings from used bookstores, college bookstores, and book dealers. Lean on your connections. Your veterinarian, zoo educational director, fish and game department and fellow rehabilitators also have libraries and resources, and they are usually willing to share. Many a friend has passed along volumes of information which they obtained from sources I never even knew existed. Reciprocation is the name of the game.

STEP TWO: Become part of a network - your local or state organization is the place to start. Join at least one of the national/international organizations and gain access to their resources and pub-

Offerings by the two International/National Wildlife Rehabilitation Organizations

IWRC

- *Wildlife Journal* - original, peer-reviewed care papers, veterinary case histories, book reviews, articles on administration/volunteer mgt.
- "Simple Things That Make a Difference"
- "For the New Rehabilitator"
- Conference Proceedings
- Skills Seminars Manuals (# 1-10)
- "Rehabilitation Notes" (Care Summaries)
- Reprints, Species Papers, Special Topics Papers
- Hotline for quick response (707) 864-1762
- State Representatives Program
- Membership Directory

NWRA

- *Newsline* - informal newsletter with wildlife columns on species care, diet, veterinary topics, book reviews, state events and reprints from other newsletters
- Conference Proceedings (#1-10)
- Ralston Purina Parasite Manual
- Volume of original articles and some reprints on wildlife rehabilitation
- Membership Directory

(Both listed by state and cross indexed to key areas of interest or specialization)

lications. The national organizations offer a great deal of information to rehabilitators, but a researcher's needs go beyond that.

STEP THREE: Use the bibliographies of species papers, skills manuals and articles to track down more information. Every properly researched article will have a list of references cited in the paper.

STEP FOUR: GO TO THE LIBRARY. The card catalogue (which nowadays is more likely to be a computer database) will give access to books on a species. These books also have bibliographies. University libraries especially will have a collection of professional journals which are the source of original publication for the articles. The journals are indexed as well, so a look through the indices will yield even more information. Scientific Citations, Biological Abstracts and the Zoological Index are volumes citing most of the scientific articles published in journals from around the world, in English and foreign languages. They are organized by subject and key word.

Now things are getting labor-intensive and more difficult. Time to go to the library is short. There may not even be a university library close enough to take real advantage of its resources. It is time for a short-cut. If you have a computer and modem, you have a world of information at the end of your phone line.

STEP FIVE: Call up on-line computer bulletin board services (BBS's) such as CompuServe, Prodigy, InterNet (University access required), EcoNet and GEnie. (Membership and connect time fees apply on most of these). Many BBS's have special interest forums on pets, the environment, wildlife, animal rights and many other topics. The Humane Society of the United States is preparing to go on-line with CompuServe, and their forum will include topics on wildlife rehabilitation. BBS's may also have on-line databases, specialized information services that index scientific journals (among others) and may even provide abstracts of articles (Knowledge Index, SciSearch, and Biosis are databases of the last dozen years of scientific periodicals cited in Scientific Citations, Biological Abstracts and the Zoological Index, among others).

STEP SIX: Call up services that are strictly databases and order specific searches for material. Delphi, Dialog and the US Fish and Wildlife Reference Service will assist in structuring a search, then either directly download to your computer (expensive - you pay for connect time and long distance) or print hard copy off-line (much cheaper) and mail it to you.

STEP SEVEN: No computer? Back TO THE LIBRARY with you. City libraries and university libraries are usually connected to many on-line databases and can do searches for you. Again, unless you are in a terrible rush, it is best to request off-line printouts to save money.

STEP EIGHT: Now that you have a long list of papers with some degree of applicability to your research (structuring a database to exclude the extraneous is an art; don't be afraid to ask for help), you GO TO THE LIBRARY. Look up the papers, read them, make copies for your own use of those that are of benefit (for recent articles, you can often request reprints directly from the author), and add them to your own library.

If you have unlimited funds and no time to GO TO THE LIBRARY, UMI can send you a copy of practically any journal article published, going back into the 19th century with some publications, for only $10.80 per article. To save money and space, you can order entire volumes of scientific journals on microfiche or microfilm for upwards of $26.00 per year.

The US Fish and Wildlife Reference Service offers reprints of their publications (a vast array of state reports, theses and dissertations, government reports, endangered species recovery programs, anything that has been funded in part by USFWS) on paper ($.10 per page) or microfiche ($.50 per fiche, usually up to 30 or 40 pages per fiche). Microfiche is an economical way to obtain and store information, and a second-hand microfiche reader can be purchased at auction for under $25.00.

STEP NINE: Share what you have learned. Write an article, present a paper at a conference, get the word out to as many people as possible. Be prepared to receive a smattering of compliments and a storm of contradictions, but take it all with good grace and learn from the experience.

STEP TEN: Continue the quest. Your research is never done. A proper researcher never throws anything away, reads and keeps even the most abstruse articles, and has everything organized for immediate recovery. A computer database indexing all research materials, coded for keywords, is essential to keeping things straight and accessible.

Not being a proper researcher except for part one of the preceding statement, I have piles of articles loosely sorted by species all over my office. There is a beginning database (of several thousand entries, but that is only a fraction of my material) on my computer. I easily meet the re-

quirement for a competent researcher of having a personal resource library of at least eight cubic yards.

Research is time-consuming, expensive, and tedious. It pays off when you go to write a paper, because you have more than just your say-so to back up your statements and observations, and you can learn much more from other people's experiences than you can in a lifetime of your own.

Acknowledgements: Thanks to Don Lancaster, the Hardware Hacker of Electronics Now and Radio Electronics magazine, who provided the initial inspiration and information for this article, and to Robert Hanes, who tracked down on-line services for me.

APPENDIX I: Computer BBS's and Database Services

AMERICA ONLINE	8619 Westwood Center Drive Vienna, VA 22182-2285	800-827-6354
COMPUSERVE	5000 Arlington Centre Blvd. PO Box 20212 Columbus, OH 43220	800-848-8990 800-635-6225 (To sign-up)
DELPHI**	General Videotex Corp. 1030 Massachusetts Avenue Cambridge, MA 02138	800-695-4005
ECONET	18 DeBoom Street San Francisco, CA 94107	415-442-0220
GEnie	GE Information Services PO Box 6403 Rockville, MD 20850-1785	800-638-9636
PRODIGY		800-776-0840
DIALOG**	3640 Hillview Ave. Palo Alto, CA 94304	800-334-2564
US FISH & WILDLIFE REFERENCE SERVICE**	5430 Grosvenor Lane Suite 110 Bethesda, MD 20814	800-582-3421
UMI***	300 North Zeeb Road Ann Arbor MI 48106	800-521-3044

**Database service only. USFWRS requires purchase of FWRS Thesaurus to structure databases to their specifications. FWRS also publishes a quarterly listing of publications free to any who request it.
***Hard copy reprints of articles, paper or microfiche. Call with complete citation (Author, Title, Journal volume, number, pages).

APPENDIX II: Resources for reference books

International Wildlife Rehabilitation Council, 4437 Central Place Suite B-4 Suisun, CA 94585 MC, Visa, Diners Card accepted & Phone or Fax Orders Phone: (707) 864-1761/Fax: (707) 864-3106
National Wildlife Rehabilitators' Association, c/o Carpenter Nature Center, 12805 St. Croix Trail, Hastings, MN
Birding Book Society, Box 564, Dover, NH 03820 (book club - membership required)
The Book Nest, National Audubon Society, Richardson Bay Audubon Center, 379 Greenwood Beach Road, Tiburon, CA 94920 10% discount if National Audubon member
Buteo Books, Route 1, Box 242, Shipman, VA 22971 Send for free catalogue. (804)263-8671 or 722-2460
The Eyrie, Box 788, Redcliffe, Alberta, Canada T0J 2P0 Phone/Fax (403) 548-3502
The Crow's Nest Book Shop, Laboratory of Ornithology, 159 Sapsucker Woods Road, Ithaca, NY 14850 10%
Edward R. Hamilton, Bookseller (new - publisher's overstock) Falls Village, CT 06031-5000
Natural Science Book Club, 3000 Cindel Drive, Delran, NJ 08370-0001 (book club - membership required)
Watkins Natural History Books, (rare and out-of print) 7036 St. HWY 29, Dolgeville, NY 13329 (MC and Visa accepted) (518) 568-2280
Wildlife Publications Inc., 1014 NW 14th Avenue, Gainesville, FL 32601

APPENDIX III: Selected Journal Resources

The Condor $30/yr. Cooper Ornithological Society c/o Allen Press OSNA Services, PO Box 1897,Lawrence, KS 66044-8897
The Auk $35/yr. American Ornithologists' Union c/o National Museum of Natural History, Smithsonian Institution, Washington, DC 20560
The Journal of Field Ornithology Association of Field Ornithologists', Dr. Ken Yasukawa, Beloit College, 700 College St., Beloit, WI. 53511-5595
Journal of the Association of Avian Veterinarians 50$/yr Association of Avian Veterinarians, 5770 Lake Worth Rd., Lake Worth, FL 33463-3299.
Canadian Journal of Zoology $129CN/yr. National Research Council of Canada, Research Journals, Ottowa, Ontario, Canada K1A0R6
Journal of Mammalogy $33/yr. American Society of Mammalogists, c/o Dr. Duane Smith, Dept. of Zoology, Brigham Young University, Provo, UT 84602.
Journal of Wildlife Management $65/yr Wildlife Monographs. Wildlife Society, 5410 Grosvenor Lane, Bethesda, MD 20814.
Journal of Zoo and Wildlife Medicine $100/yr. American Association of Zoo Veterinarians, 34th St. and Girard Ave., Philadelphia, PA 19104.
Great Basin Nauralist $16/yr. Brigham Young University, 290 Life Science Museum, Provo, Utah 84602
American Midland Naturalist $50/yr. University of Notre Dame, American Midland Naturalist, Notre Dame, IN 446556
North American Fauna, price varies. US Fish & Wildlife Service, Department of the Interior, Washington DC 20204
Northwestern Naturalist $25/yr. Society of Northwestern Vertebrate Biology, c/o John Pierce, Treas., Department of Wildlife, 600 Capital Way N., Olympia, WA 98501-0248
University of California Publications in Zoology, price varies, University of California Press, 2120 Berkeley, CA 94720
Zeitschrift fur Saeugetierkunde (*International Journal of Mammalian Biology*) (English, French, & German text) $205. Paul Parey Scientific Publishers, 35 W. 38th St., No. 3W, New York, NY 10018
Herpetoculurist $25CN. Repil eBreeding Foundation, PO Box 1450 Picton, Ontario, Canada K0K2T0
Herptofauna $36/3yr. Aus. Australasian Affiliation of Herpetological Societies, PO Box R307, Royal Exchange, Sydney, NSW 2000, Australia
Amphibia Reptilia $101.93 (English, Spanish, French) EJ Brill, 24 Hudson St. Kinderhook, NY 12106.
Herpetological Review $20/yr to non-members. Society for the Study of Amphibians and Reptiles, Department of Zoology, Miami University, Oxford, OH 45056.

Cottontail Feeding Problems: Part II *"The Big D."*

Emmy Reese
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8806 Four Seasons Ct.
Alexandria, Virginia 22309

Introduction

The successful rehabilitation of cottontail rabbits depends largely on understanding and respecting both their extreme vulnerability to stress and susceptibility to diarrhea. Some problems are inherent, others may be created by the rehabilitation process itself. Though using seemingly diverse methods, many rehabilitators have had almost identical rates of success when aspects relating to stress prevention are comparable. However, everyone working with cottontails will experience some frustrating losses that they suspect could have been prevented. The emphasis of this paper is on diagnosis and prevention. It's a Trouble Shooter's Guide for avoiding most of the major and minor pitfalls in cottontail care and includes the shared experience of other rehabilitators who also specialize in cottontails.

Diarrhea in cottontails can be fatal in two days or less if not accurately diagnosed and treated. *The most common mistake made is to assume that it is caused by whatever is being fed at that time.* As a result, some rehabilitators compromise with inadequate or artificial diets, premature weaning, and release. The rationale being as long as they don't die in rehabilitation, "it doesn't matter because they are only going to be eaten anyway." The goal should be to maximize good nutrition at every phase and release a healthy animal that is gaining weight on a diet as close as possible to what it will eat in the wild, when independent.

Cottontails "are born in a blind helpless state but grow rapidly, and at about one week their eyes open. At any time from 10 to 20 days of age the young leave the nest but *remain in the vicinity*, hiding under bushes by day, and, at least for the first few days after leaving the nest, coming out after dark to nurse on their mother." (Lord, 1963). The rehabilitator's hand, replacing greens at the same afternoon hour that local cottontails emerge to forage, triggers early exploratory activities in the cage. It must be assumed that individuals that are larger, more active, or aggressive than others in the litter are ready to leave the nest or form sooner (Reese, 1992). Estimated ages at the completion of weaning vary from 3 weeks to 4 or 5 weeks, reflecting regional and subspecies differences. Litters of young rabbits that have left the form have been observed playing together, and even singles playing alone (Rue, 1965), instinctively practising important survival skills. By leaving the form at this stage there is also the added advantage that, "if one is caught, the others being scattered may escape" (Rue, 1965). It's erroneous to assume that weaning precedes dispersal from the nest or that both take place abruptly a few days after the eyes open. Become as familiar as possible with the natural history of the wild rabbits for which you are caring because it offers many insights into the problems that occur in captive care. Remember that it's usually a mistake to equate them with other baby mammals or even to assume that they are "just like" domestic rabbits. Respect their need to be wild rabbits!

Stress-Induced Enteritis

This species is incredibly sensitive to sounds and scents and their digestive tracts differ greatly from most other species. Stress can precipitate an imbalance of delicate intestinal bacteria leading to an overload of pathogenic bacteria. The result is stress induced-enteritis. Whenever diarrhea appears, review all stress factors:

1. Frequent handling. Minimize handling by picking each bunny up *only once* (to weigh, stimulate, feed, medicate), then return it and repeat with the next in that litter. It is a wise practice to divide litters of more than six, early on, so that each one isn't being exposed to the handler repeatedly reaching in an excessive number of times.

2. Noise or intrusive traffic *in* the room. Use the quietist room available and keep the door closed at all times. Most distant sounds can be tolerated with the possible exception of barking dogs. Wild rabbits need long, uninterrupted periods of quiet to recover from routine handling, and do best in a room used only for rehabilitating their species.

3. Presence or *scent* of predators, including that of family pets, on hands or clothing. Always wash hands before handling each litter of rabbits, and change tops if necessary. (Bunnies previously known to feed well will signal their distress by balking, squirming, seeming distracted, or even screaming.)

4. **Overcrowding.** These animals begin as social units at birth but develop into solitary animals. They need separating prior to weaning and release (See pre-release stress), which is contrary to our instinct to keep the family together until they can be released together. *Anyone working with wild rabbits should keep extra cages in reserve for each litter taken in.*

Introduction of Formula

"The most common causes of diarrhea [of nursing orphans] are overfeeding and not introducing a formula via a rehydrating solution" (Marcum,1992). After a first feeding of 100% hydration solution, milk replacers made with electrolyte solution instead of water, are gradually incorporated into the hydration solution, increasing by quarters or thirds. Pediatric Bactrim® given q 12 hrs (.02 ml per 50 grams of body weight) is used on intake as a diarrheal *preventative*. It "duplicates the milk-induced antimicrobial condition that occurs in suckling rabbits." (Hiss, 1990) Its use permits a more rapid break-in to full strength formula with increases being made at each feeding. Weight gains may be noted as early as the next day. The hydration solution used in the milk replacer is then gradually replaced by water in quarter or third increments until full strength formula is being used. In cases of starvation and emaciation lactated ringers with 2 1/2% dextrose should be given subcutaneously. The animal should then be fed formula made at half strength with rehydration solution, with the second feeding at full strength.

Diarrhea should not result from the introduction of formula feeding. If Bactrim® is being used and diarrhea does occur at this phase, other health problems, such as diseases or parasites, should be suspected (Hiss, 1990), and a veterinarian experienced with rabbits consulted. (Bactrim® is *not* an effective treatment if diarrhea is already present.)

Bactrim® is a human pediatric drug that a licensed veterinarian can prescribe by phone at any pharmacy. Bactrim® (Roche) is given orally at a dosage of .02 ml per 50 grams of body weight q 12 hrs. The author strongly suggests that generic substitutes not be used. They have been known to cause fatalities. (Check the label, or ask the pharmacist.) A probiotic should not be given at the same time Bactrim® is administered; allow an hour or more to lapse between them.

Overfeeding

Knowing how much to feed can be a problem! This species' behavior is seldom a useful or dependable indicator of "how much is enough." The bunny that balks on the first cc or two may be feeding well by the last one; but, occasionally an older bunny will remain motionless at the end of a good feeding, indicating it wants more. To achieve good weight gains without overfeeding the rehabilitator needs to know when to persist and when to quit. Check the abdomen. You should be able to note a visible change. It should appear fuller at the sides but never round and taut.

The number of feedings per day depends on the age and condition of the rabbit. Healthy furred (brown), eyes-closed bunnies average three feedings a day, healthy unfurred (black) newborns average four. The emaciated unfurred, eyes closed, infant who exhibits premature standing and frantic head waving, searching for the nipple, should be fed 5 times a day from the start, until weight gains have been established. After eyes open decrease to 2 feedings, toward the end of that week go to one, making the last feed a half. The value of recording daily weights *cannot be underestimated* in this species as any loss is an indicator of trouble! (Numbered I.D. tags of masking tape placed on



Young cottontails with ear tape identification markers.

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ADDITIONAL ITEMS:

Drug Dosage Wall Chart

Wildlife Flow Chart--1991 Dosages provided or reviewed by Keath Marx, DVM; Michael Murray, DVM; Janna Wynne, DVM; Steve Sanders, DVM; and Jan White, DVM

This 11" by 17" coated flow chart shows what steps should be taken upon receiving an injured animal. Starting at the bottom of the chart, and, depending on what condition the animal is in, various protocols are followed on up through the chart. There is also a list of antibiotics and their dosages for easy reference.
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both ears ensures consistent records should one be shed.)

Useful feeding averages correlating size to amount can be found in the charts of Hiss and Marcum, (Hiss 1990, Marcum 1988). Bunnies from very large litters are noticeably smaller for their developmental age than those from normal litters.

Rehabilitators used to formulas incorporating whipping cream who are switching to ones using Multi-Milk® must bear in mind that Multi-Milk® formulas require less volume. Feeding the same amount the rehabilitator is used to will result in overfeeding. Rehabbers used to the thick, creamy KMR®/Multi-Milk® formula and unused to the relative thinness of the Esbilac®/Multi-Milk® formula can also be tempted to overfeed. When in doubt check the chart for each formula. If you should accidentally feed the same rabbit twice it will survive, but overdo it a little all day and it will not!

Introduction of Solids

When eyes begin to show signs of opening, fresh *wild* greens, (grasses, clovers, plantains, dandelion, chickory, ragweed), should be introduced, along with shallow lids of water, apple, alfalfa, rolled (Quaker®) oats, commercial rabbit pellets and pieces of salt lick. Occasional treats include shredded carrots or fresh corn. Sweet Timothy Hay provides optional additional fiber (Koth, 1992). Alfalfa and hay may be purchased in "mini bales" at feed stores. Wild greens should provide the bulk of the diet before release. (Commercial rabbit pellets mostly provide a back-up if they run out of greens, but becomes the staple diet in the rare instance where an injured cottontail might be overwintered.)

Avoid using lawn clippings or weeds from suburban yards that are grown with fertilizers on subsoils, or that might be exposed through wind drift to toxic sprays used nearby. Gather every two or three days from several alternate lush "wild" weedy areas *not* adjacent to any structures or areas likely to be "maintained" or taken care of. Totally immerse the greens in several changes of cold water to rinse and hydrate them, drain and store in plastic bags in the refrigerator. Replace uneaten foods once a day, or more often if it is unusually hot and humid. For the first four or five days very little will be consumed, however by the end of that week appetites increase dramatically. The best weight gains are made when formula and solids are both consumed. Many bunnies are reluctant to wean. Do *not* place formula in the cage! The bunnies step in or hop through the dish, the milk sours, and the inevitable cleanup is stressful. Complete weaning, which occurs between 4 to 5 weeks in the wild (Chapman, 1991), should not be rushed. Abrupt weaning should be avoided as it constitutes an abrupt change of diet and also causes diarrhea.

When solids are introduced, a probiotic should be given daily to establish a beneficial gut flora, and may be continued until release (Hiss, 1990). Pet Ag's Bene-bac® for mammals or Probios oral gel for Ruminants® have both been found very effective, while the *Lactobacillus* culture in yogurt is too low in numbers to be sufficient. The exact dosage of probiotics is not critical but averages .05 ml per 50 grams of body weight. Never give a probiotic at the same time Bactrim® or an antibiotic is given. One destroys the effectiveness of the other, so allow an hour or more to elapse between them. (Pre-medicated commercial rabbit feeds are not advisable for wild baby rabbits destined for release. Dosages of the medications consumed are more difficult to monitor.)

Probios oral gel for Ruminants® is available from Omaha vaccine Co. (800-367-4444) and Bene-bac for Mammals® from Pet-Ag (800-323-6878).

Housing and Handling

Along with being susceptible to diarrhea, rabbits are also very vulnerable to spinal injuries and may break their own backs by struggling if improperly held or when jumps result in falls. Most movement is forward and the rabbit is restrained by a hand covering the top of the head and shoulders and a finger pointing towards the nose.

If an active, eyes-open bunny is found lethargic, limping, or dead with *a trace of diarrhea* on it, the cage flooring, or bedding, then a spinal injury should be suspected. Diarrhea is often seen with this type of injury. Check the housing and furnishings which play a key role in preventing injuries. Wild bunnies will persistently jump up towards the light or climb cage sides and corners, then fall, so cages *must be draped at all times.* Use white or light colored sheets that admit light to maintain normal day/night differentiation. Ideally cottontails should be housed in *low,* horizontal cages 10" to 14" high. Leave two or three small, 2" to 3", openings, at floor level for ventilation. The use of open topped cardboard cartons causes many deaths mistakenly attributed to a sudden, fatal diarrhea or the mysterious "difficulty of keeping them alive." Small boxes placed inside for shelter should not exceed 3" in height. Avoid using them altogether for injured, unusually active, or "wild" juvenile rabbits.

Young cottontails have a preference for

fuzzy textures to sit on or hide under. (Use acrylic baby blankets, or material that can be washed with bleach.) Light colored cage flooring (paper towels, or tightly woven fabric such as pillowcases or sheets) that contrast with the droppings assists in quick detection of diarrhea. A digital scale minimizes time and handling when weighing bunnies. Bunnies defecate on their own from birth but should be stimulated to urinate before each feeding until they no longer hold still for this procedure. Infants can be quickly stimulated by using dry Q-Tips® and a light, very rapid, flicking motion. If feedings and handling take place on the floor, escapes can't become falls. Ideally cages should be kept on the floor if possible because this is a ground dwelling species. Wrapping the bunny in a receiving blanket, so only the mouth and nose are exposed, has a calming effect and provides a safe restraint for any who are wild or balky.

Pre-release

Careful observation of behavioral changes will alert the rehabilitator to impending pre-release stress. An increase in the *sounds* of running and jumping (playing/fighting) is an indicator that the gradual dispersal from the nest would have begun in the wild. This readiness for separating or need for more space is also indicated by territorial attacks on the handler's hand intruding into the cage. Several rabbits confined together at this stage become stressful to each other and may even begin to fight. Artificial litters of young eyes-closed babies can be made but unrelated eyes-open bunnies should *never* be put together. Their fighting has been known to result in wounds.

Stress-induced enteritis frequently occurs near the end of weaning or just prior to release. This diarrhea often begins gradually, showing up first on the cage flooring as only 2 or 3, slightly larger than normal, dark droppings surrounded by a dark stain. The bunnies, who may be nestled together in an angelic row most of the day grooming each other might look healthy and happy, but may be stressing others. (The one getting sick may be the one that lost as little as one gram when last weighed.) A quick scan of floor and bedding is essential when checking on them at this stage.

Separating them *immediately* will stop this stress-induced enteritis that so frequently occurs among weanling rabbits, *if* this is the cause! To prevent its occurrence split the litter into singles or pairs when sounds of increasing activity intensify and can be heard from the draped cage. Pairs do well in cages that are 24" X 36" if 2 piles of alfalfa and furnishings to hide under are placed in opposite corners. Related litters may be reunited briefly to facilitate cage cleaning. Singles do well in 24" X 24" cages, but cages exceeding 24" X 36" make it stressful to catch bunnies that are wilding up. In addition, check other stress factors and consider temproarily withdrawing fruit and vegetables. One other suggestion is to add Timothy Hay to increase fiber.

Since fresh greens are being introduced or increased at this stage, and coincide with the increasing stress of confinement, many rehabilitators mistakenly assume that what is being fed is the cause of diarrhea occurring at this time. The staple diet of the cottontail in the wild is one of herbaceous greens with grasses predominating in the growing season and woody species in the dormant season. Young cottontails prefer succulent green weedy forbs such as dandelion, prickly lettuce, dock, plantain, ragweed, and red clover, (Chapman, 1982).

Release

Bunnies "wild up" as they grow and are ready for release when fearful of humans and gaining weight on a diet close to the one they will have in the wild. Weights range between 100 and 200 grams but developmental readiness is best detected by persistent attempts to escape from the confining cage, by digging in the corners, jumping at the top, or chewing on exposed bars.

The routine practice of acclimating rehabilitated wildlife prior to release by placing them outdoors is very stressful and puts this species at serious risk. Some acclimation to outdoor ambient temperatures, scents and sounds can be accomplished by leaving the windows open. It's almost impossible to guarantee that no predators, wild or domestic, will ever come upon the cage. It's also doubtful that such a highly instinctive species benefits from anything "learned" in such confinement. "Prey animals must be able to avoid predators from the outset, since their mistakes in learning are likely to be fatal. Their "intelligence" is necessarily genetic, built in by natural selection" (Volker, 1986). Cottontails are among the ultimate of prey animals, but they are not without their own defenses. Their survival strategies involve concealment, freezing, or full flight. Even if confined in a predator-proof cage, prolonged freezing often results in stress and full flight in fractures.

Releases should be done as quickly and quietly as possible, using a small ventilated box, only slightly larger than the rabbit, to prevent injuries from attempts to escape. The optimal time is as close to dusk as possible or at dawn. The optimal site is in a dense hedgerow or briar patch bordering a mowed meadow or lawn, adjacent to a

woodlot (for winter forage), in an area known to be occupied by other cottontails. When released their chance of successful concealment is maximized by leaving nothing behind such as food or water, which would attract curious predators who will note anything "new" or unusual in their home range.

Parasites, Diseases and Injuries

Diarrhea at any age that contains mucous or begins abruptly, with very loose, yellowish, droppings indicates the need to consult a veterinarian. (Locate one experienced with both rabbits and wildlife, in advance if possible.) Withdraw milk based formulas and other foods. Hydrate orally with appropriate electrolytic solutions and/or "rice milk" (See part I in *Wildlife Journal* 15(2) p. 11), and begin a Probiotic® q 12 hrs.

"Cottontails are host to a wide variety of endoparasites" (Chapman, 1982). They include: Cestodes (tape worms); Nematodes (*Baylisascarias procyonis*); trematodes (flukes), Protozoans (Trichomonas), Sporozoans (coccidosis). Coccidiosis can produce a bloody diarrhea. Due to the very small samples produced by little bunnies the chance of finding parasitic eggs is more likely using a direct smear, with a very fresh sample, rather than the normal fecal flotation test. (Ask which test is being used when getting negative results.)

"The specific cause of a case or outbreak of diarrhea in rabbits is often difficult to determine. In most instances a definitive diagnosis would probably involve two or more organisms and associated toxins." (Harkness & Wagner, 1983) "Specific conditions that might be considered, if not conclusively diagnosed, are colibacillosis, enterotoximia from *Clostridium perfringens Type E*, Tyzzers disease, intestinal coccidosis, lack of dietary fiber, mucoid enteropathy, antibiotic administration, and such rarely reported conditions as *Salmonellosis*, pseudomoniasis, aflatoxicosis, and rotavirus infection." Detailed information on the parasites, enteric (intestinal) diseases, and other diseases of cottontails, including treatments, are covered in *Hand Rearing Orphaned Eastern Cottontails (Sylvilagus floridanus)* (Hiss, 1990).

Antibiotics may cause diarrhea by interfering with normal gut flora. In fact, due to fatal reactions, great caution is used by the veterinarian when prescribing them to rodents and lagamorphs (Harkness and Wagner, 1983). When prescribed, often in an injectable form, antibiotics are *followed up with probiotics* to re-establish any gut flora destroyed by them (Stocker, 1992, Hiss, 1990). Injectables, which bypass the gut are more quickly and completely absorbed. It should be assumed that all cat bite wounds in rabbits are infected with *Pasteurella*. Visible blood loss is not a reliable indicator of the presence or seriousness of wounds in this species. Infected breaks in the skin, invisible to the eye on intake, can be felt as infection sets in. If there is a history of cat caught on intake, palpate carefully for two days. (Open and flush wounds with a dilute Betadine® solution. Preparation H® seems to promote good granulation along with a beneficial numbing effect.) Injectable Amoxicillin, BID 10 to 14 days, has proven an effective treatment. Baytril® injectable which has the advantage of being less painful and less likely to cause enteritis, has recently been tried with some success. (Hiss, Koth, Simmons, pers. com., 1992).

Conclusion

Once you know what the pitfalls are, orphaned bunnies are not hard to raise and have some unique advantages and rewards for the rehabilitator. Don't be discouraged or tempted to compromise your standards of care by the high mortality rate which is normal for this species in the wild. Their system of producing large surpluses has permitted their species to flourish when others, such as the California Condors, have not. Assume yours are the ones destined to survive. All deserve the best care that you can give them to make it possible!

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Changes Ahead for the Wildlife Journal

Beginning with Vol. 16 No. 1, the *Wildlife Journal* will become the ***Journal of Wildlife Rehabilitation.*** Other changes in format will include abstracting of all feature articles, key word listings, and where ever space allows, biographical sketches on feature article authors.

The Vol. 16 series will include articles on euthanasia, rehabilitation of squirrels, mergansers, harriers, and the latest information on dealing with emaciation. Our special topics issue will showcase wildlife rehabilitation efforts in countries outside the United States. *International members with feature articles, case histories, or ideas for the issue should contact the Editor at IWRC.*

Continued from page 2

their funders.

Most wildlife rehabilitators who have been involved for several years or more consider their activities to be far more than a hobby. For most, it is a way of life and in a way similar to professions such as nursing, it influences the way we live. Today, there are many jobs across the country that involve wildlife rehabilitation and people have come to consider what they do a profession.

It seems to me that if we are going to have a profession, we need to have professional standards. Not just caging standards, but also standards of knowledge and conduct. While, IWRC and NWRA jointly have developed standards for housing and have a code of ethics—we have not yet tackled standards of knowledge, primarily because this is a licensing issue which is handled on a state-by-state or provincial basis. A number of states have instituted exams (for initial licensing) and continuing education standards for license renewal . Alas, California, where I live, is not one of them. IWRC's commitment to making continuing education available to people in even the most remote areas continues both because of our mission to 'share the knowlege' and we know unless such continuing education opportunities are widely available, state or provinces are not likely to require continuing education. It seems ironic, that IWRC has made so many training opportunities available to California wildlife rehabilitators for over ten years, and yet the California Fish & Game Department is still *not* ready to require individual examinations on the basis of knowledge or to require continuing education (except in the case of those caring for oiled animals). Why are the oiled birds so lucky?

-Jan White, DVM-

Warming Shelf for Nestling Song Birds

Donna Burt
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Introduction

At the Stanislaus Wildlife Care Center we have been using a thermostated warming shelf to provide heat for nestling songbirds for the last five years. The design has proved itself to be effective and practical. This shelf will maintain a constant temperature for the nestling bird containers even though the room temperature may vary significantly. Although it cannot cool off the birds if the room temperature exceeds the ideal nest temperature, it will not add additional heat if the room becomes hot. It will compensate for cold periods.

The Warming Shelf

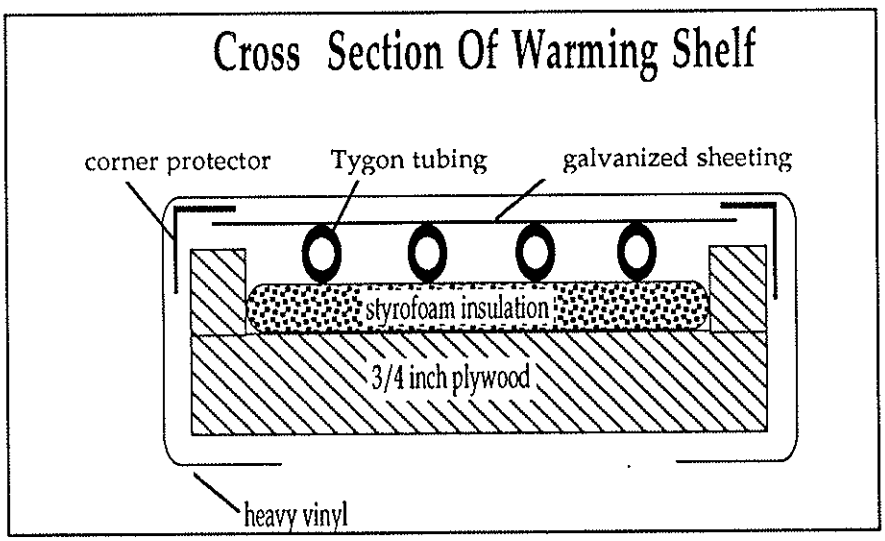
The shelf is constructed of 3/4 inch plywood with a 3/4" x 3/4" raised border that is nailed and glued in place. Inside the raised border a sheet of 1/2" Styrofoam® insulation is placed on top of the plywood.

One half inch thin wall Tygon® tubing is arranged on top of the Styrofoam®. Warm water is pumped through this tubing. Over the tubing there is a sheet of galvanized metal flashing to give the shelf a hard surface and to help conduct the heat to the nest containers on top. Plastic corner protectors are used to hold the metal in place and to cover the sharp metal edge. The entire shelf is covered with heavy vinyl stapled to the bottom. The vinyl makes a smooth waterproof surface that can be washed and disinfected.

Underneath the shelf there is a five gallon fish tank with lid. This tank sits on a piece of Styrofoam® insulation and is completely surrounded by Styrofoam® insulation. Inside the tank there is a 300 watt submersible fish tank heater. One end of the Tygon® tubing is attached to the outflow nozzle of a submersible fish tank pump. The other end returns the water to the tank. The heater maintains a constant temperature in the tank and the pump pumps the warm water through the tubing in the shelf.

The nestling birds are stored in upside down plastic shoe boxes. Several 3/8" holes are drilled in the sides and bottom of plastic shoe boxes to provide ventilation. The lid is set on the shelf and covered with a paper towel. The nest with baby birds is set on the towel and the bottom of the shoe box is inverted over the birds, keeping in the heat and the birds.

Sewer pipe test caps are used as nest substitutes. These are made of tough pliable plastic. They come in several diameters and can be cut down if they are too tall. Because they are short and shaped like a nest the birds will back up to the edge and defecate outside the nest. At each feeding



the nest is lifted and the paper towel is changed. It is seldom necessary to change the bedding inside the nest because, if the proper size test cap is used, the inside bedding will stay clean for a day.

Color coded plastic plant tags are labeled with common feeding instructions. These are hung on the edge of the shelf. When needed they are taped to the front of the shoe box to remind the volunteer of the proper care for the animal inside. Each day boxes and nests are cleaned and disinfected. The boxes and caps are not harmed by any of the common disinfectant such as bleach, Roccal®, Nolvason®, SynPhenol-3®, etc.

It is important to remember that when setting up a test cap as a nest the facial tissue should NOT extend over the sides. If it does the best part of the design will be defeated. The birds will back up and defecate on the tissue. Only if the tissue is completely within the nest will the birds be able to defecate over the side onto the paper towel.

Construction Details

Although this shelf will probably cost around $200 to set up and takes some construction skills we have found it well worth the time and money. It has virtually eliminated the use of fish tanks or cardboard boxes as incubators for nestling birds. The time involved in cleaning has been greatly reduced and the birds stay cleaner. Also, we no longer have birds killed by volunteers who set the heating pads too high or low.

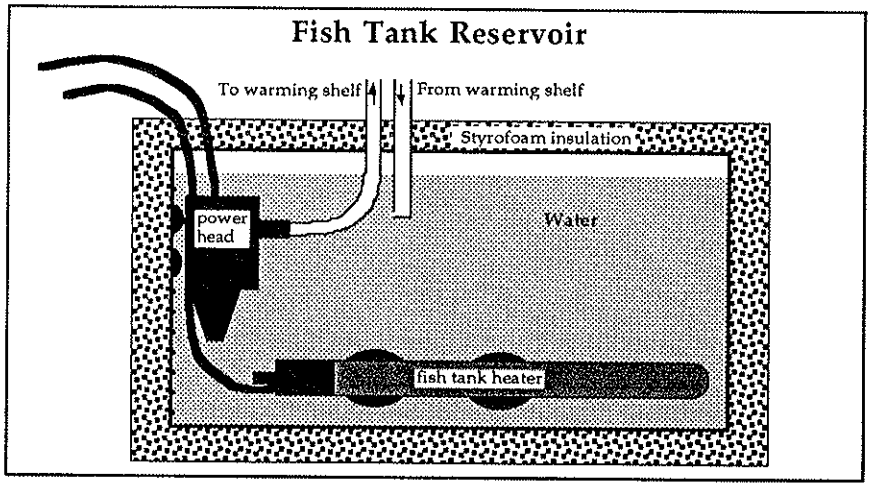
Construction of the shelf is straight forward but getting the tubing to lay down properly is a bit of a challenge. Things will go easier if the Styrofoam® is lightly glued to the plywood. It will probably be necessary to piece together several pieces of foam to cover the shelf. If they are lightly glued in place they will have less tendency to pop up while the tubing is being positioned.

The shelf should contain as much tubing as possible to maximize the heat transfer, however, the tubing must not have any kinks in it or the water will not flow through it. The recommended water flow pattern requires tee fittings, an added expense, but uses more tubing and eliminates the possibility of kinks. The alternate flow pattern will work as long the tubing is carefully positioned. Using duct tape to hold the tubing to the foam is the best way to make sure kinks do not develop after the shelf is put together.

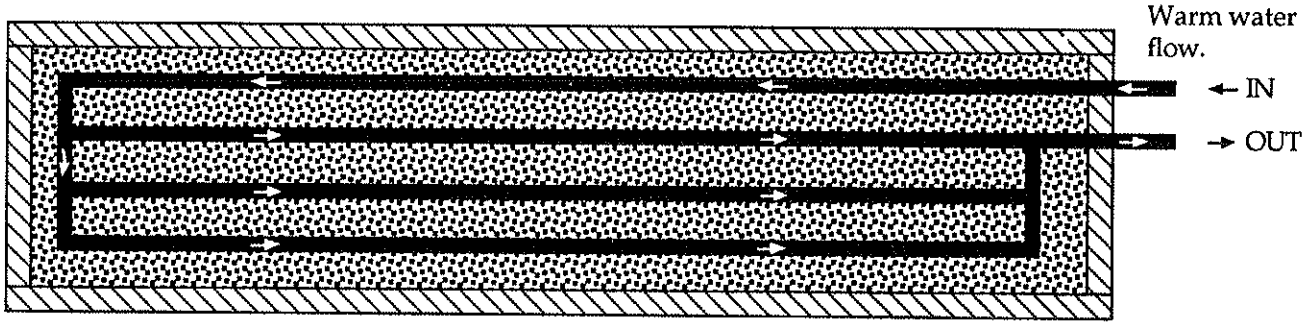
The larger the diameter of the tubing, the better the shelf will work, but be sure that it will fit on the water pump outflow nozzle. If it is larger than the nozzle make sure some form of adapter can be fabricated.

Any hard water deposits inside the tubing will reduce the effectiveness and life of the shelf. Use only distilled or deionized water in the system. Because only two electrical cords and two tubes go into the tank the holes in the tank lid can be very small. This will keep evaporation to a minimum.

Buy enough Styrofoam® to cover the shelf twice. Cut the extra into pieces the size of shoe box bottoms. Use these to insulate the areas of the shelf that are not in use. This will make the shelf work much better and save on the electrical bill.



Water Flow Pattern



1992 Conference Held in Naples, Florida in the Wake of *Hurricane Andrew*

Mary Reynolds, IWRC Conference Coordinator

The 15th annual conference in October 1992, hosted by *The Conservancy* of Naples, Florida, was held at the beautiful Naples Beach Hotel & Golf Club. The hotel was right on the beach with a great view of the Gulf of Mexico! Our attendees were even able to swim in the Gulf in October, as the water temperature was in the mid 70's. Many conferees made an extended vacation out of it. The service and staff of the hotel went out of their way to be accommodating.

In spite of our conference being held in the wake of *Hurricane Andrew*, we had an attendance of about 200, with 16 different exhibitors. The field trips that were arranged and organized by *The Conservancy* were sensational, and we want to thank them for all of their hard work and dedication. We saw more species of waterbirds in a single canoe trip than I have seen in my entire life!

Registration went smoothly. Everyone was especially grateful that they could pre-register for the workshops and eliminate the need for arriving early and standing in long lines. The papers and workshops that were presented were well-received by our attendees, with a keynote presentation by the President of the Conservancy, Dr. John Fitch on the ecological significance of wildlife rehabilitation. Our other talks covered such topics as marine mammal emergency care, updates on rehabilitation being done in foreign countries, medical management of the Florida Panther, ecological & environmental education, isoflourane anesthesia for sea turtles and several papers on various species of mammals and birds. Workshops included bandaging and wing-wrap techniques, emaciation, fund-raising, public speaking, radio telemetry, translocation of nuisance wildlife, care & feeding of songbirds, computers in wildlife rehabilitation, and commercialization of reptiles & amphibians. Both the Silent Auction and the Raffle were very successful and good fund-raisers for the IWRC. We'd like to thank all of you that donated to these efforts and all of you that volunteered time, with special thanks to *Judy Shaffer*.

Plans are well underway for the 1993 conference in South Lake Tahoe. The focus will be on raptors, but there are many other exciting papers planned, including the rehabilitation of rabbits, skunks, ground squirrels, raccoons, reptiles, and workshops on bandaging techniques, feather repair, necropsies, hematology, making raptor hoods, and much more! We expect this to be one of our best attended conferences ever, so make plans to be there!

1992 Skills Seminar Summary

Marilyn Adams, IWRC

This year there were thirteen Basic 1AB Skills Seminars and eight advanced classes. We served 437 people with the basic classes and 272 people in advanced seminars for a grand total of 709 participants! This program, developed by IWRC in 1983, regularly serves 500-700 wildlife rehabilitators annually. It is a unique program, and the only nationwide program that offers "hands-on" supervised basic and advanced skills training sessions for the wildlife rehabilitator.

The basic skills classes were held in six states and one foreign country—California, Virginia, Oregon, Florida, Maryland, Ohio, Alberta and Ontario, Canada. There were twenty-one states represented by attendees at our 1992 classes as well as four Canadian provinces.

This year we produced a revised third edition of the 1AB manual, one of the most widely used wildlife rehabilitation books in this country. With this edition we have computerized the book and updated much material and many references. We have also worked on the continual updating of the information we use in the lectures.

Each year our program grows, reaching more and more rehabilitators throughout the world. We look forward to the continued growth of the program and the benefits it brings to both the wildlife rehabilitators and the animals with which they work so hard to return to the wild.

Treasurer's Report

PC Hanes, Treasurer

IWRC
Revenue & Expense Statement
January 1, 1992 to December 31, 1992

Beginning Balance 1-1-92		$16,981.76
REVENUES		
Skills Seminars	33,386.00	
Conference	19,569.07	
Literature	23,268.53	
Membership	38,092.81	
Standards & Accreditation	0	
Raptor Symposium	630.00	
Miscellaneous	4,319.11	
	$119,266.52	
EXPENSES		
Skills Seminars	$34,081.08	
Conference	20,633.66	
Oil Symposium	11,252.35	
Journal	16,270.56	
Literature	19,382.83	
Membership	5,797.81	
Administration	20,610.20	
Board of Directors	2,479.07	
Standards & Accreditation	1,025.87	
NWRA	2,543.96	
Miscellaneous	230.19	
	$134,307.58	
Ending Balance 12-31-92		$1,940.70

Standards & Accreditation

During 1992 the joint IWRC/NWRA Standards and Accreditation Committee saw several significant long-term changes. During the year committee members worked hard to review the 1989 approved document and proposed to both Boards of Directors changes in the existing caging standards and Code of Ethics. New sections were added to address the behavioral needs of animals. For the first time, a new section was developed on the reporting of disposition statistics by wildlife rehabilitators. It is hoped that it will be possible to look at program statistics with more consistency because of these new standards.

In addition, IWRC wrapped up the pilot program for accreditation in California. During this program a total of eleven organizations or individual rehabilitators were reviewed. Pilot accreditation was awarded to Wildlife Fawn Rescue, the San Benito SPCA Wildlife Rehabilitation Center, Santa Cruz Predatory Bird Research Group, Sulpher Creek Nature Center, Bird Intercounty Rescue Development Sanctuary, Santa Clara Valley Humane Society Wildlife Program, Sacramento Wildlife Care Association, the Marine Mammal Center, the Wildlife Rehabilitation Center in Morgan Hill, and Lake Tahoe Wildlife Care. Accreditations are valid for five years. We thank all of the participants for their willingness to work with the fledgling program. As with all new programs, the pilot program chair, Crystal Norris, wrote a closing summary with recommendations on how to improve the program. She and the many other reviewers are to be commended for their pioneer efforts!

Late in 1992, the joint committee separated into two committees (IWRC & NWRA) with two separate chairs. NWRA decided to opt out of accreditation and IWRC will continue to develop this very special program. The two organizations will continue to produce a joint Standards booklet.

Young Raptor Feeding Box or Never Raise Imprints Again!

Marjorie Gibson
Raptor Education Group
N2160 W. Rollwood Rd.
Antigo, WI 54409

Every spring, rehabilitators are faced with the problem of raising young raptors. Not only do we need to consider the proper nutrition and husbandry- but an element every bit as critical to their survival- is the ability to raise them without imprinting them to humans. As a general rule, chicks that have been imprinted to humans are not releasable and habituated birds take considerable effort to rehabilitate.

I will first include a short discussion of alternative methods which should be considered before attempting to raise a chick yourself. Consider all of your options and choose the one that is best for the chicks. A wild parent is always the best parent and teacher for your young patient. As rehabilitators, we do our best to fill in for those parents, but never allow yourself to be lulled into believing that you can reach the same level of success. With that thought in mind, what are the other choices?

Fostering chicks to wild nests that have chicks of similar age (but not too many) is an excellent means of dealing with healthy orphaned chicks. Hacking young birds in a prey-abundant area is also a proven method. All reintroduction projects such as the Peregrine Falcon Reintroduction Program and the California Condor Project utilize the hacking technique with great success. The "how-to" description for the above methods will not be discussed in this article, but techniques and phone advice are readily available.

There are times when it will be necessary to raise the youngster at your facility. (Perhaps the chick is undergoing medical treatment or an adequate wild nest cannot be located). In these cases the feeding box will be your best option. This device was shown to me many years ago by a friend that is both a falconer and a raptor biologist. Over the years I have altered a few things, sometimes to tailor-fit individual species, and other times in desperation to find additional space for fast-arriving orphans. The result has been a very easy method that is adaptable to any facility, utilizing the most basic material and at a very low cost.

The basic premise of the feeding box is to get food to the chicks without them seeing or hearing who is delivering. This is done to reduce habituation to humans. Young raptors eat on their own at a very early age. While the parent bird does tear small bits of meat and crush the bones at first, by the time the chick is 2-4 days old (depending on the species) he is able to pick up small pieces by himself. It is at this time, when his eyes are open and functional, that he should be placed in the feeding box.

Each raptor species has a different critical "imprinting window." Generally it is from a few days after hatching to 3-4 weeks of age. When in doubt it is better to err on the side of using the feeding box longer than to end up with an imprinted chick. For the larger hawks plan on five weeks. Owls are particularly sensitive to imprinting and have an extended "window" as well. Allow six weeks or more of isolated feeding for owl species.

You will need the following items:

1. A wooden or cardboard box large enough to house the chicks. (Cardboard boxes have become my mainstay these days as they can be disposed of after use, resulting in less possibility of contamination or disease transfer.) A 24" square box is a good average size for most raptors.

2. A pan to serve as a nest during feeding. Astroturf™ in the bottom of the pan will help chicks to steady themselves and is easy to keep clean. An animal food dish will serve well for smaller species, an oil changing pan or livestock pan for the larger species. (Cost $1.98 and up).

3. A one-way, wide-angle door viewer (the type used in apartment doors for security viewing). The wide-angle type is the most useful, however the regular view type will also work. (Approximate cost $3.49).

4. A feeding tube large enough in diameter (3-4 inches) for food items to pass through easily, as the chicks get older. I like to use the PCV pipe bend which is readily available in hardware

stores. Stove pipe is an inexpensive alternative, or even a length of flexible plastic dryer tubing. (Approximate cost $1.15).

5. A mirror large enough for the chicks to see their own life-size image (@ 10" x 10") to be put on the back or side of the box. This allows chicks to see their own image as they eat. Chicks raised with siblings are more successfully raised without imprinting. (Approximate cost $1.50).

6. A roll of duct tape for assembly. Assemble the feeding box according to the illustration, making certain the feeding tube is easily accessible for dropping in food, and allows for the food to drop into the "nest" pan with the chicks.

Through the viewer, placed in the top of the box over the "nest" dish, you will be able to observe the chicks eating, and be able to determine if any are having difficulty eating, either physically or due to sibling rivalry. You can also see when the chicks are finished with their meal and it is safe to return them to the nursery.

Keep the feeding area quiet. The chicks should not be able to hear you or see you during the feeding process.

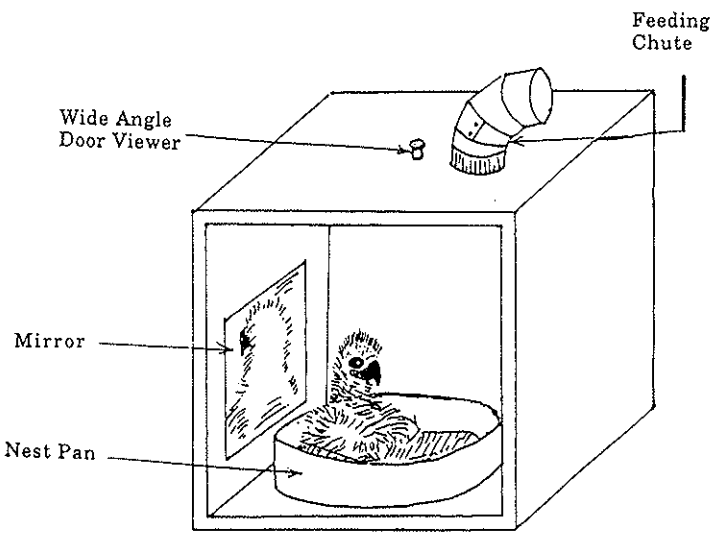
I like to play recorded calls of adult birds of the same species prior to feeding. I think this may be especially important in sensitive species such as the Coopers Hawk. Some workers have used a prepared skin of a adult, or perhaps even a photo of the same species in an effort to promote species identification.

While the illustrated box has the front open, you may wish to use a partial opening in the front, particularly when the youngsters start to move around. Keep in mind the chicks need enough light to feed.

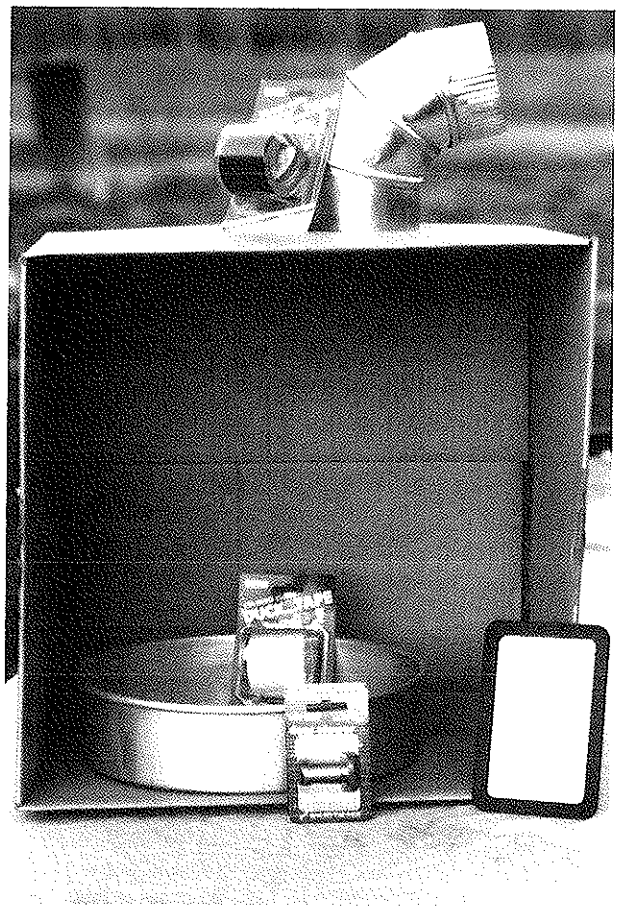
The feeding box is meant for feeding; however, you can use it for the nursery as well. It is important to handle the chicks as little as possible, and with a few adaptations you can create a dual purpose box for them. For example, you can add a heat source for smaller chicks.

When making your raw material purchases, get a few extras. In rehabilitation the one thing you can count on is that you will need additional space at the most inconvenient times, such as holiday weekends, night-time, and peak entertaining periods. Because it is important that the chicks not be hand-fed even a few times, BE PREPARED.

Acknowledgements: *Much appreciation and thanks to Jim Bryan for his years of patient tutelage and sharing of rehabilitation philosophies so long ago, and for banding that beautiful female Coopers Hawk that started it all.*



Drawing with chick



Unassembled feeding box components

Book Review

Bruckner Nature Center's Primer of Wildlife Care and Rehabilitation

Patti L. Raley
Bruckner Nature Center
5995 Horseshoe Bend Road
Troy, Ohio 45373
2nd edition (July, 1992) 236 pp.

The question before us regarding this book is: will the profession of wildlife rehabilitation benefit from this revised manual? The answer is, yes. Chapters are well-referenced and interesting. The manual is spiral bound with a waterproof cover which I (Hope) personally tested while working on a great blue heron who had been hit by a snowplow. The book survived my rehabilitative efforts. The heron did not. That was not for lack of reference material in the book. It was the snowplow's fault.

This is a handbook with brief amounts of information on many topics. It is not written to be a definitive work. Practical information is presented on 116 birds and 33 mammals with notes on related species. The manual emphasizes species in Ohio and adjacent areas. For example, emergency situations briefly review bleeding, electric shock and respiratory problems.

A sub-theme, we are grate to see, endorses the importance of seeking veterinary assistance. Generally, treatments are discussed, but specific dosages are left to the discretion of the attending veterinarian. The manual does not give much more than a mention to the methods of euthanasia, a topic of great concern and debate for wildlife rehabilitators. It does, however, consistently recognize the need for humane euthanasia and again, encourages the reader to seek an attending veterinarian to discuss appropriate methods.

Some areas that are of concern from a veterinary point of view are as follows. The splints need diagrams and more detail but the advice is generally safe if performed properly. However, treatment for dehydration should not, in the 1990's, include boiled Coke™ or Kool Aid™. If you go to a grocery store to buy Coke™, you might as well buy Pedialyte™ which is a 2.5% Dextrose balanced electrolyte solution. At least, you don't have to boil the Pedialyte™! The section on shock gives the reader a general idea of what happens to the animal. Inconsistent with the rest of the book, it gives doses for several antibiotics (penicillin and streptomycin) without listing precautions such as the possibility of harm if procaine penicillin is given to small birds. When directing the reader to staunch blood flow it jumps from sprinkling Blood-stop Powder™ to applying a tourniquet. What happened to applying pressure for five minutes or using a pressure wrap? Tourniquets can be dangerous if handled improperly. Another piece of advise that can really cause problems is using an "emergency nestling diet" made for the most part of lean ground beef or strained baby beef — both of which are very high in phosphorus and low in calcium. The reader is given a choice of using 1/2 cup of canned dog food (which has a reasonable Ca:P ratio) or these other two items which will very likely induce metabolic disease in less than a week. No analysis or break out of caloric content, Calcium :Phosphorus ratios, or protein levels are given for any of the diets. My hope is that most rehabilitators will recognize the inherent danger of recommending ground beef diets to anyone, even for short periods of time.

However, this book will serve well as a quick reference manual because of the 50+ tables it contains. Topics included are: normal body temperatures, weights, habitats and habits, diets in the wild, life-spans and age indicators. Charts are well presented and easy to read.

This book deals with species-specific information and also addresses the dangers and joys of rehabilitation. Dangers include contagious illness, injury, expense, lost sleep and frayed nerves (this, I know), damaged and/or soiled property. In return for efforts to assist wildlife, benefits include heightened awareness, a sense of fulfillment, the joy of release and the opportunity to promote environmental/ecological awareness.

The Bruckner Nature Center published its first edition "Guidebook for Rehabilitation of Birds and Mammals" in 1980. This new edition includes further consultations with wildlife rehabilitators, research in wildlife biology and veterinary literature in addition to Bruckner's own experience. Currently, there is not yet a truly complete manual on wildlife rehabilitation. The more we think about it, however, the more we think that is like asking for one book for all aspects of small animal medicine. This book tries to address lightly a wide range of topics from administrative matters such as permits and standards, veterinary concerns, hygiene and clinical procedures, natural history, and wildlife nutrition—each of which a complete book could be written. It also has tidbits on the theories and realities of wildlife rehabilitation, lists of suppliers, measures and conversions and a short list of professional organizations. (By the way, neither the IWRC address nor phone number is current and NWRA now has its own office in Minnesota).

Patti L. Raley, editor, states "Our hope is that this new edition will be a practical and informative resource for professional naturalists, wildlife conservation officers, students of environmental science, wildlife biology, and veterinary medicine and to non-professionals from all walks of life who have an interest in wildlife conservation and rehabilitation". Quite an undertaking.

We think that this is a practical resource. It should be approached using critical thinking and with other references in hand. We recognize how much work has gone into this edition and look for more revisions which will result in an even more useful reference.

Hope M. Douglas and Jan White, DVM

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Have an unusual animal or problem?
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Get a helping hand from your colleagues!

Wildlife rehabilitation can be challenging or frustrating depending upon how quickly you find answers to those first-time problems. When you are faced with a new situation or looking for a new solution to a recurring problem, avoid that feeling of hopelessness or isolation and give us a call. The Wildlife Hotline is designed to help *wildlife rehabilitators* by connecting you to an expert who can give you the answers you need. IWRC office personnel staff the hotline and make referrals to any number of specialists in our diverse field. So if you are stumped or just want a second opinion from someone who's been there—give us a call and we will try to help. Calls should be placed during business hours (PST) for the fastest response, however, the answering machine will take messages at any hour of the day.

To use the hotline: call (707) 864-1762; leave a message detailing your question, problem or what specific information you need. The Wildlife Hotline will return your call COLLECT with the help you need.

Photo by Tom Millham