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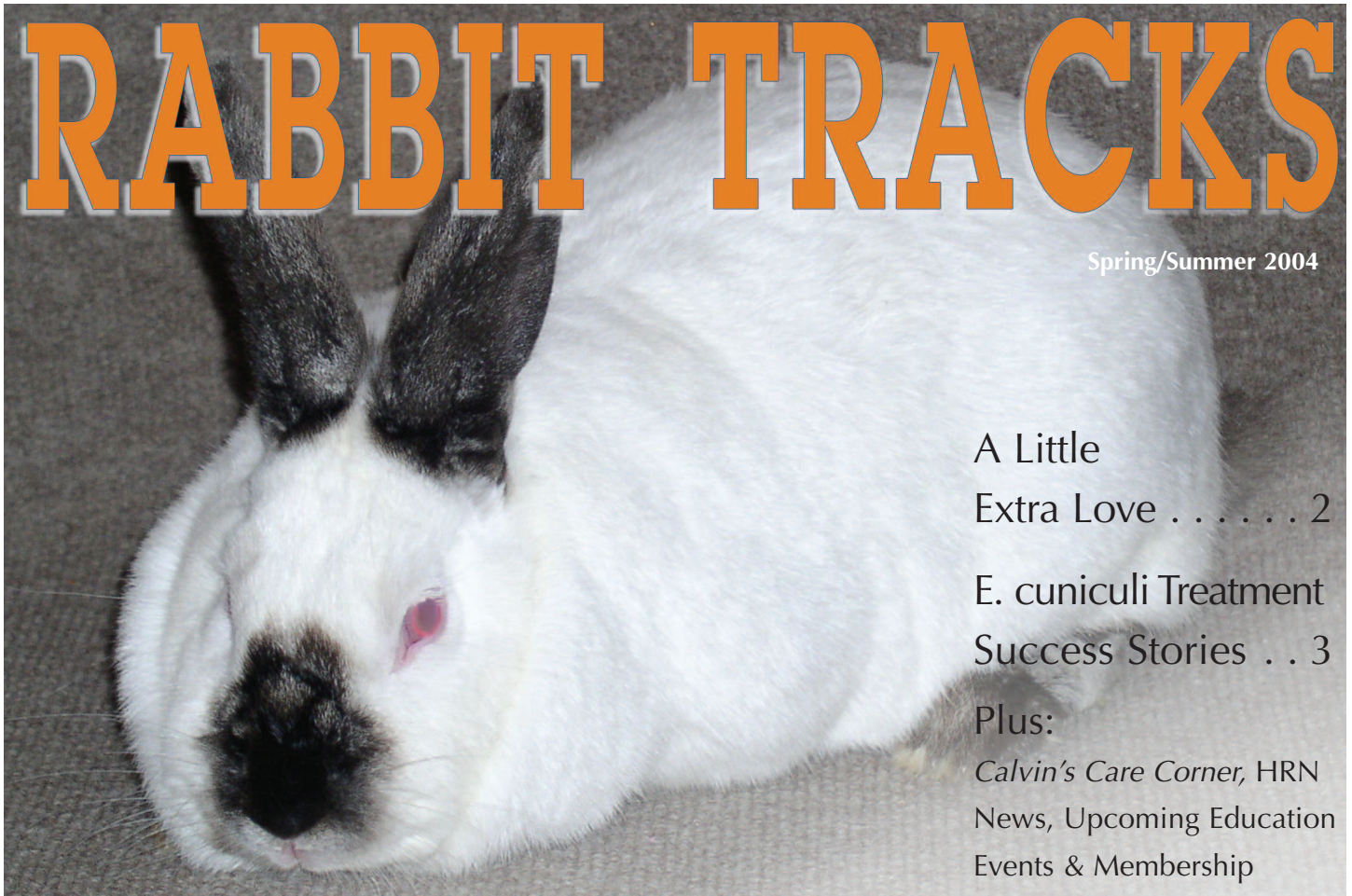


Dedicated to educating the public and to fostering and adoption of companion rabbits. 781-431-1211 or www.rabbitnetwork.org.

RABBIT TRACKS

Spring/Summer 2004

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A Little Extra Love....

by Suzanne Trayhan

As a rescue organization we are dedicated to finding homes for rabbits. We don't make any distinctions among them and think that all rabbits deserve to find a good, loving, forever home. While this is a noble concept, it is one that has been difficult to implement. It is also one that jeopardizes our very existence.

When we pull rabbits from the shelters, we get in all types. All types can mean several things. We take in a variety of different breeds, including Netherland Dwarves, Lops, New Zealands, and mixed-breed rabbits. Some are very social and love people. Others, well, let's just say they need some work. Then there are rabbits with health problems. Most rabbits are fairly healthy or have minor issues that can easily be solved. Others have more serious issues that may require lifelong care. These may include problems such as: kidney problems, UTIs, molar spurs or poopy butt. Sometimes the rabbits are healthy, but old.

Sadly, most people favor healthy rabbits of certain breeds. This makes us favor pulling them from the shelters. These rabbits are never in any real danger and we often don't have enough of them. When a cute lop or small bunny arrives, most are placed

within a month. This isn't true for rabbits with health or social issues, or for some types such as large mixed-breed rabbits or New Zealand White rabbits. All the rabbits, especially the not very adoptable ones, deserve a good home. However, these rabbits are very difficult to place. Many people refuse to even meet them, or if they do, claim that they "just didn't feel a connection". These rabbits can take over a year to find a home, if they are placed at all. Sometimes we get into situations where a third or half of our cages are filled with tough-to-place rabbits. This, in turn, makes it harder for us to help the shelters because we aren't getting the turnover that we need.



Dash & Dakota

Many times we have had three or four people interested in the same rabbit. The ones that don't get the rabbit typically don't adopt another one. The people who do get the adoption are proud of themselves

for saving a life. Not to sound cruel, but they really aren't. If you want to truly save a life, and in reality, save many lives, choose a less adoptable bunny. How are you saving many lives? Not only do you save the life of the bunny you adopt, but you free up that cage. Since that cage may have been occupied by your new rabbit for several years, indirectly you are helping to save the life of every rabbit that goes through that cage over the next couple of years. It is another available foster space that can safely hold rabbits until they are placed.

What does it take to adopt these rabbits? Most of the time it just takes a little extra love and a willingness to open your heart to an extra special bun. It can be as simple as adopting a wonderful rabbit with a great, outgoing personality who has pink eyes. It can mean taking an older rabbit. It can be a willingness to take a bunny with poopy butt and give him butt baths once a week. It really isn't that much – and the love you get in return from these rabbits is huge. Caretakers often develop a tighter bond

when they are providing extra care for their pets. With older rabbits it can mean leaving yourself open to be hurt when they die. However, you get the satisfaction of knowing you made their last year or two great.

If you aren't sure about taking an ill rabbit for financial reasons, consider becoming a sanctuary home. You can take in rabbit(s) that are considered too ill to have a good chance of finding a home, and HRN will pay for all the medical bills. You will need to provide the day-to-day care, and of course, the love that these rabbits need.

If you don't feel you can handle the extra medical issues, then adopt a large mixed breed rabbit or an up-eared rabbit with pink eyes. Most people won't even consider them. In fact, it is easier to find a home for a lop with health issues, a bad personality and no litter box habits than for a New Zealand White with a great personality, great health and perfect litter box habits. Sad to say, but looks are very important to most people.

A third option is to split the difference. Choose one bunny that you really like, and try pairing him or her with a less adoptable bun. For example, try pairing a lop with an older rabbit or one with pink eyes. This way you will have the type of rabbit that you favor, as well as providing a home for a rabbit that may have never found one. You just might surprise yourself with how the second bun wins your heart.

Next time you are adopting a rabbit, instead of gravitating towards the lops or cute dwarf rabbits, open your eyes and look at the others.



Jasmine & Felix

All the rabbits deserve a forever home with someone to love them. It takes a special person to provide a home for the less adoptable rabbits and you will truly be doing a good deed. All it takes is a willingness to open your heart and little extra love. Remember, pink eyes are beautiful.

E. cuniculi Treatment Success Stories

by Kathy Smith

When I first became involved in the rabbit world ten years ago, a symptomatic rabbit who was diagnosed with *E. cuniculi* had a very poor prognosis. While there is still no cure, today there are several treatment options that veterinarians have used with success.

Since no single treatment has proven effective in all cases, it is important for all of us, both caretakers and veterinarians, to keep abreast of new treatment options and be open to new ideas. The treatments discussed

in this article vary from “widely-used-over-almost-a-decade” to “promising-in-very-limited-testing.” If your veterinarian is open to trying one of the newer treatments, don't be surprised if she wants to do additional research and/or consult with those veterinarians who have already used these treatments.

What is *E. cuniculi*?

E. cuniculi is a protozoan parasite that is spread through spores that are shed in the urine of infected rabbits. A rabbit may contract it at a young age from an infected

mother or from cage mates who are shedding spores, or later in life from an infected companion. The parasite attacks the nervous system and major organs, causing a variety of symptoms including head tilt, liver disease, kidney disease, cataracts, incontinence, loss of function in the legs (back, front, or both), nystagmus (eye twitching), and/or other neurological symptoms.

Diagnosis

E. cuniculi is diagnosed by a blood test that is not part of routine bloodwork. A positive result (often referred

to as a positive “titer”) only means that the rabbit has been exposed to *E. cuniculi* resulting in antibody production. *E. cuniculi* is often kept in check by a rabbit’s immune system and many rabbits that test positive for *E. cuniculi* never develop symptoms. However, if the rabbit’s health (mental or physical) is compromised, he may start to develop symptoms. Some caretakers choose to have all rabbits in their family tested. Knowing whether your rabbit has tested positive can be helpful, especially if he develops symptoms that may (or may not) be caused by *E. cuniculi*, such as head tilt or a wet bottom. However, keep in mind that

thought to be shed only briefly, in the early stages of an active infection.

Common Treatments: The -bendazoles

The most common treatments used for symptomatic *E. cuniculi* today are benzimidazole derivatives used to treat intestinal parasites in various species. While these drugs have been used successfully on many rabbits, there have been some reports of mild to moderate elevation of liver enzymes. Although values usually return to normal after medication is discontinued, please discuss periodic blood testing with your veterinarian.

treating rabbits long-term with oxibendazole have reported that the treatment gradually seems to stop working over time, perhaps indicating that the parasite eventually develops a resistance to it.

Albendazole

Albendazole, a drug used in humans to treat lesions caused by certain tapeworms, was the first of the benzimidazole derivatives to be used to treat symptomatic *E. cuniculi*. It was first used with some success in the mid-1990’s by several veterinarians including Dr. Jeff Jenkins, a well-known rabbit veterinarian in the San Diego area. Albendazole is the only benzimidazole that is quickly absorbed and eliminated by the body, but also may have more side-effects than the others.

Oxibendazole

In the late 1990’s several HRS members and their veterinarians began treating a significant number of symptomatic cases of *E. cuniculi* with oxibendazole, a horse worming paste. For many rabbits, treatment led to remarkable improvement and in many others it stopped progression of the disease. Today oxibendazole is a commonly prescribed treatment for symptomatic *E. cuniculi*. It has been used by hundreds of veterinarians around the world to extend life (with quality) for thousands of rabbits.

Unfortunately, oxibendazole is not successful in treating all cases of *E. cuniculi*. Despite the large number of rabbits who have been treated with it, there is no compilation



Fred & Henry

in a multi-rabbit household, a rabbit that has tested negative may test positive at a later date. This is especially important to remember if his companion has tested positive and has recently developed symptoms! Spores are

The action of benzimidazoles is slow, and the length of a rabbit’s gastrointestinal tract further delays absorption by the body. In many rabbits, symptoms return when medication is stopped. Recently, several caretakers who have been

and/or analysis of data on rabbits who have been treated and whether treatment was successful (either symptoms improved or rate of progression of symptoms was reduced).

Fenbendazole

In 2001, a study published in the *Veterinary Record* (April 14, 2001, pp.478-480) suggested that fenbendazole, a drug used to treat roundworms, might be effective in both preventing and curing *E. cuniculi* infections. This was a major breakthrough, both because there was scientific data to support the findings and because this was the first treatment that was believed to cure (rather than simply control) the condition. In rare cases, long term treatment with fenbendazole may be associated with the onset of bone marrow failure.

Some veterinarians who had been skeptical of albendazole and oxibendazole because of the lack of scientific data began treating symptomatic cases of *E. cuniculi* with fenbendazole and others switched to prescribing fenbendazole. I have recently heard from several individuals that their veterinarians were going back to oxibendazole because they considered it to be more effective than fenbendazole once symptoms



Mama, Timmy & Emma died from E. cuniculi last summer

emerge. Again, however, this conclusion is based on each practitioner's individual experience rather than on a pooled scientific data.

Baytril

My veterinarian, Dr. Noella Allan (Lakewood Animal Health Center, Lee's Summit, MO) has had significant success using Baytril, in conjunction with oxibendazole, in the treatment of symptomatic *E. cuniculi*. She frequently prescribes both treatments while waiting for test results in cases where symptoms pointed equally to *E. cuniculi* or a bacterial infection. Over the years, Dr. Allan noticed that in her practice, rabbits with *E. cuniculi* that had been treated with Baytril showed more improvement or slower disease progression than those who were treated with oxibendazole alone. In addition, when symptomatic *E. cuniculi* rabbits on long-term oxibendazole treatment showed progression of symptoms, the addition of Baytril often resulted in overall improvement in their condition.

Although Dr. Allan is not sure of the exact mechanism for this improvement, she suggests the following possible modes of action:

- Baytril (or its interaction with oxibendazole) may actually interfere with the protozoan or its replication
- Improvement may be an anti-inflammatory response
- By treating co-existing bacterial infections, Baytril might strengthen the overall immune system

I admit I was skeptical about using Baytril to treat *E. cuniculi*. However, when Henrietta developed head tilt just before Christmas 2001, Dr. Allan started her on both Baytril and oxibendazole while we waited for the results of the *E. cuniculi* test. Henrietta tested positive, but by the time we had the test results her symptoms had significantly improved. We continued both treatments for several months and today the only way I can tell which direction her head tilted is to remember which side of the toilet she would lean against!

Pyrimethamine

A promising new treatment was suggested by Esther van Praag, Ph.D., a Swiss biologist, in her paper, "Can Encephalitozoon cuniculi, a Protozoal Parasite of the Nervous System, Be Treated With Pyrimethamine?" (The complete text of this article is available at www.medirabbit.com.) Dr. van Praag based her study on the similarities between *E. cuniculi* in rabbits



and *Sarcocystis neurona*, an equine protozoal parasite, which lives in the nervous system and spinal cord, and causes equine protozoal myelitis (EMP). According to Dr. van Praag, EMP is routinely treated with the antiprotozoal drug pyrimethamine.

Knowing that pyrimethamine has been safely used in rabbits to treat both toxoplasmosis and hepatic coccidial infections, Dr. van Praag suggested the possibility of using pyrimethamine to treat *E. cuniculi* in rabbits. The protocol, documented in her article, is based on one for treating toxoplasmosis in horses and includes the following drugs:

- Folic acid
- Pyrimethamine
- Sulfadiazine
- A non-steroidal anti-inflammatory (NSAID)

The drug dosages for use in rabbits were determined by Mark Lennox, DVM, (Crossroads Animal Hospital, El Paso, TX) who based them on the treatment of toxoplasmosis in cats. This treatment should be used for a full month, assuming the rabbit is able to safely tolerate the treatment.

According to Dr. van Praag's article, the pyrimethamine both blocks the metabolism of folic acid in the parasite and increases

the effectiveness of the sulfadiazine in combating the parasite. It is important to note Dr. van Praag's warning that compounds containing trimethoprim, which is combined with sulfadiazine in many sulfa drugs, should not be used because trimethoprim may increase the toxicity of pyrimethamine. Her article also points out that the combination of pyrimethamine and sulfadiazine may affect the function of bone marrow, causing a decrease in both red and white blood cell counts. Folic acid is an important part of the protocol because it helps minimize this side effect. However, regular blood work is suggested when using this treatment. The administration of an NSAID (e.g. Banamine or meloxicam) helps reduce the inflammatory response induced by the death of large numbers of parasites at one time.

At this time (April 2004), this treatment has been used on a very small number of rabbits, all of which had previously been treated with one or more of the "-bendazole" treatments and all of which had stopped responding to these treatments. All the rabbits showed a very high titer for *E. cuniculi* and were not suffering from other health issues, except in one case. The results, while very preliminary, seem quite promising.

Heather McMurray's rabbit Sweetie is one of the success stories for this protocol. Sweetie is a 10-year-old rabbit who had one leg amputated several years ago. In 2002 he lost the use of his remaining rear leg

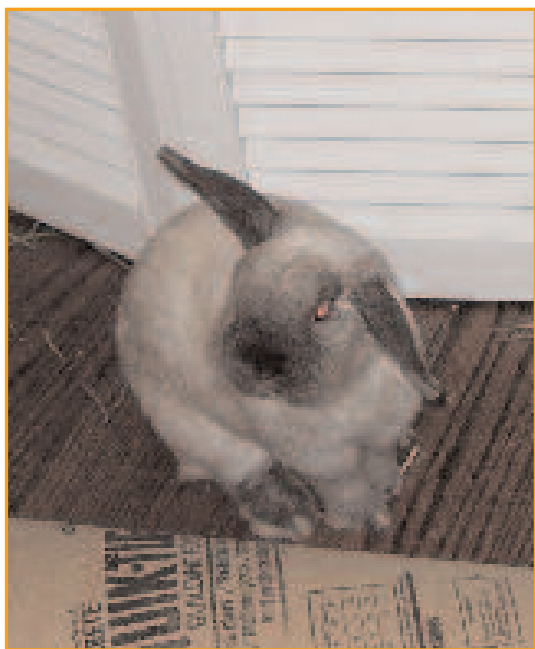
and was found to have a very high *E. cuniculi* titer. He was treated first with fenbendazole. When this treatment stopped working after about six weeks, he was switched to oxibendazole for several months, until it, too, stopped being effective. Heather's veterinarian, Dr. Lennox decided to try the pyrimethamine protocol on Sweetie. Heather noticed visible improvement within six days of the start of treatment, and treatment was continued for a full four weeks. Although Sweetie has not regained full use of the leg, the paralysis has not worsened since Thanksgiving when he completed the treatment.

Lufenuron

For several years, lufenuron, an oral chitin inhibitor, has been used safely in rabbits as a short-term flea treatment. Dr. Dean Beyerinck (Irving Street Veterinary Hospital, San Francisco, CA) has treated more than 50 symptomatic cases of *E. cuniculi* with lufenuron and has been pleased with its success rate. The scientific explanation of this treatment is based on information in an article by Elizabeth S. Didier in the July 1998 issue of "Clinical Infectious Diseases," which suggests that the endospore of the *E. cuniculi* spore is composed of chitin. Thus, while lufenuron probably does not kill the existing organisms, it may be quite effective in keeping them from reproducing!

The long term effect of lufenuron on the body of rabbits (and other mammals) has not yet been established. Recently, it has been found that mammals possess chitin-like





Toby – started lufenuron treatment in spring of 2002

enzymes, and the interaction of lufenuron with these enzymes has not been studied.

Dr. Beyerinck began treating Susan's rabbit Toby with lufenuron in the spring of 2002. At the time treatment was started, Toby's titer had risen dramatically over a two-year period. Although she had been warned that it might be two or three weeks before there was visible improvement, Susan began noticing slight improvement after only three days and significant improvement after eight days. The original plan was to treat Toby every four weeks, but in his case symptoms seemed to return like clockwork after about three weeks. Since the fall of 2002, Toby has received a lufenuron treatment every three to four weeks. According to Susan, Toby's overall health and quality of life have improved significantly with this treatment.

Future Directions

As rabbit caretakers and their veterinarians share their experiences, and pool both their data and their scientific and analytical skills, there is reason to hope that some day we will be able to effectively control symptoms and halt the spread of this disease. To accomplish this, it is important to begin collecting and analyzing clinical data on individual rabbits receiving various treatments, with the understanding that there is as much to be learned from treatment failures as from successes.

It is also important to understand that in medicine (both human and veterinary) it is not unusual for a treatment that appeared promising in a controlled, laboratory setting to fail miserably in a real-world clinical setting. Similarly, new indications for existing treatment — or combinations of treatments — are often discovered by observant clinicians who notice trends in their practice.

If you have an idea about a treatment that might be effective against *E. cuniculi*, I urge you to discuss it with your veterinarian, keeping in mind that all ideas — even bad ones — should be explored and discussed. When we were reaching the end of the road treating Goldie in 1998, my husband George and I “brainstormed” possible treatments for her. Dr. Allan quickly vetoed trying quinine because it would be too harsh to use on a rabbit's

delicate system, but agreed it was worth trying George's suggestion to use the leftover beta-interferon from his MS injections. While this treatment had no noticeable effect, at least we had tried something!

The ultimate treatment or cure for *E. cuniculi* will probably not be one of the options discussed in this article. But perhaps it will come from a seed planted by a thought process discussed here, or by a reader daring to toss out an “outlandish” idea for discussion with her veterinarian.

HRN Wish List

The House Rabbit Network is always in need of supplies or other items for our organization. If you could donate any of these items, please contact us by phone at 781-431-1211 or by email. It would really help us out if you could drop the items off for us. Our contact person should be able to find a convenient location for you.

- High quality pellets such as Purina Lab Diet or Oxbow's Bunny Basics
- Fresh hay
- Wood stove pellets
- Copying services
- Office supplies- stamps, paper, envelopes.
- Large cages- at least 2'x3', rabbits
- Exercise pens
- Rabbit toys- baby car keys, rattles, hard plastic balls, slinkies, tubes
- Grass mats, wicker baskets (unfinished)
- Care supplies- nail clippers, brushes, styptic powder
- Everyday supplies- litter boxes, water bottles, crocks
- Digital cameras
- Fresh greens
- Cash to pay our vet bills



Welcome Back!
Calvin here, and I'm pleased to bring you another installment of my new column where I share clever tips for house

rabbit caregivers. Feel free to submit your tip to berben@comcast.net.

Many thanks to Cheryl Reinhardt for her tips on attending to the needs of a cage possessive rabbit.

Some rabbits resent human hands entering their "domain", or cage. There are a couple of ways to deal with this, and you will have to figure

out which way works for both you and your rabbit.

Rabbits are creatures of habit, so the first rule to remember is: No surprises. When feeding your bun while he is in his cage, get him used to a routine of litter box swapping, watering and filling the food dish. Try putting your hand on top of the bun's head and pressing his head, gently, to the floor. Then reach in with your other hand to do whatever is necessary. Talk to your bun in a soothing voice and tell him what you are doing, as you are doing it. Consistency is also a key rule. Clean the cage, litter box, refill the water and food bowls in the same order every day. That way your bun will know what to expect next.

Some buns will go ballistic and will need to be out of their cage when you need to get your hands


in there. Accept the fact that the bun will simply not tolerate your presence in his home. Give him some time out of his cage while you are messing with his area. When you are done, put some of his favorite veggies in his cage to lure him back in. Again, consistency is the key.

Sometimes you really have to be creative until you and your bun learn to trust one another. Try using a funnel poked through the cage to add pellets and water to his dishes. Try poking clean hay through the top of the cage directly over the litter box. Use your imagination when necessary.

Hopefully, with time, consistency, a soft voice, and no surprises, your bun will settle down and accept the fact that you need to put your hands in his cage, and he might even look forward to your loving hands.

HRN News

Yankee Candle Fundraiser

The next Yankee Candle  Fundraiser is set for August 1-15. HRN will get 40% of all candle sales and 30% of all accessory sales. Check the website for purchasing and/or selling dates.

Huge thanks to **LeighAnn Sciacca** for her help with preparing HRN's 2003 tax return.
All the buns salute you!

Upcoming Education Events

House Rabbit Network hosts information booths at various pet stores in eastern Massachusetts throughout the year. We will list the dates and locations of upcoming events on our web site. Please stop by and visit our booths! We are always happy to answer any questions you may have about rabbits and rabbit care. We will have with us information about adopting rabbits, listings of available rabbits, and some rabbits who are up for adoption. Please note that we do not adopt out on site.

 Saturday, September 11
Tufts Open House,
North Grafton, MA
10 AM-3 PM

 Sunday, September 12
Pet Rock PetFest
Quinsiamond Community College
Worcester, MA
11 AM - 2 PM

Yard Sale!

We have annual yard sales as fundraisers for our organization. Our next one will be summer 2004. If you have items to donate (you can get a tax deduction!) please contact us! info@rabbitnetwork.org. We can also use volunteers to assist with the event.

Volunteers Meeting

We will be having a summer party in August. If you are interested in attending and/or volunteering, email us for more information.



Buns of the Month: Winston & Matilda

Winston and Matilda are a gorgeous brother/sister pair. They can be a bit shy at first, but once they get to know you, they will let you pet them. They are very easy to hold and settle down

in your arms. Winston is a little assertive and checks out what you are doing. Matilda is more shy and needs time to get to know you.

Both rabbits have really good litter box habits. They are ten months old and very healthy.

Featured Rabbits for Adoption

HRN has a wide array of rabbits currently in foster care who are eagerly awaiting their own permanent, indoor homes and loving families. All have been spayed or neutered, socialized, and litter-box trained. Visit our website at www.rabbitnetwork.org to see all of them!

Molly 6.5 lbs, 4 years, mini lop
Molly is a friendly bunny who likes attention. She can be opinionated and will let you know what she likes and doesn't like.



Sabrina 4 lbs, 3 years,
Himalayan Dwarf
Sabrina is a pretty girl. She has a "dwarf attitude" and likes to be approached on her terms.



Dawson 5 lbs, 1 year, Mini Rex
Dawson is a really sweet boy. He is gentle and likes to be petted. He has the soft, velvety, rex fur.



Max and Flopsy

5 lbs, 5 years, Mini-Rex,
7 years, Holland Lop
Max and Flopsy are 2 sweet bonded bunnies. Max is a chestnut brown mini-rex. He loves to run around and binky and doesn't like to be separated from Flopsy. She is a white holland lop. She is incredibly sweet, likes to be pet and loves attention. They both do ok around young children but do not do well with other animals.



Join HRN...or...Please Renew Your Membership

If you are not already a member, please join HRN!

Your membership dollars will go a long way towards improving the lives of house rabbits everywhere. We thank you for your support!

House Rabbit Network does not only foster rabbits, we also foster friendship, encouragement, and community. Please become a member and join our efforts, share your strengths, and be a part of our success. You will gain something personally rewarding while helping house rabbits both within and outside of our organization.

Make 2004 a year of change — for you and for house rabbits alike!

Contact HRN at info@rabbitnetwork.org or (781) 431-1211.



House Rabbit Network Membership and Ordering Form

Your membership donation is tax deductible and will be used for medical costs (spays/neuters, vet bills) and education expenses. All members will receive a copy of our newsletter, Rabbit Tracks, when it is published. Currently, we are publishing three issues per year.

Memberships run from April 1 to March 31 (donations received in Jan.–March will be credited for the following year). To join, fill out this page and mail it with your check (payable to the House Rabbit Network) to:

**House Rabbit Network
P.O. Box 2602
Woburn, MA 01888-1102**

Choose your membership level:

- Dwarf \$ 15.00
- Mini Lop \$ 25.00
- New Zealand \$ 50.00
- Flemish Giant \$ 100.00
- Mix (other) \$ _____

Choose your newsletter delivery preference:

- PDF format via email
(significant savings for HRN)
- Hard copy via U.S. Mail

Please send me _____ copies of *Rabbit Health in the 21st Century* at \$20.00 each \$ _____

Membership: \$ _____

Book(s): \$ _____

Other Contribution: \$ _____

Name _____

Street _____ Apt. _____

City _____ State _____ Zip _____

Phone _____ Email _____

Total: \$ _____