

RabbitingOn

The Magazine for Rabbit lovers

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paw print

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Caring for babies

OCULAR DISEASE
Eye problems explained

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OF AN RWA
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WELCOME TO THE WINTER RABBITING ON



As another year draws to a close, we all hope that 2022 will allow life to return to some further normality. For many rescues, the pandemic has hit hard. With fundraising, volunteers, travel and vet visits all severely affected, and now an increase in rabbits being handed into rescues, some are really struggling. If you can help your local rescue in any way, then please do offer your services. Our Rescue POV feature is written by Alice Chamberlain of Windwhistle Rabbit Rescue, and focuses on the struggles they have endured over the last 18 months (page 20).

The RWAFF Rabbit Friendly Vet list now has over 200 veterinary practices listed across the UK, so most people are within an hour of a Rabbit Friendly practice. We are extremely proud of the high standards that each and every practice has to meet to gain entry onto the list, whether this is at silver or gold level. Registered Veterinary Nurse, Rachel Sibbald works at one of these practices, and in her 'behind the scenes' feature, she takes us through what happens when a rabbit goes in for neutering (page 2).



Rabbit Welfare Association & Fund
A hutch is not enough

Rabbiting On is the quarterly journal of the Rabbit Welfare Association and Fund, which exists to improve the quality of life of pet rabbits in the UK. For further information about day-to-day rabbit health issues please visit the website at:

<https://rabbitwelfare.co.uk>

To join the RWAFF please go to the website or telephone the Helpline: 0191 933 9000



Cover picture:
New Africa Shutterstock

Dr Emma Milne has examined numerous ethical topics surrounding rabbits in previous issues of Rabbiting On and continues the series in this issue, looking at the subject of show jumping for rabbits (page 4).

Dr Richard Saunders, the RWAFF Veterinary Adviser, is a name known to many, as one of the most widely respected rabbit vets in the world. Richard discusses his recent bonding and medicating experiences with his own rabbits (page 6).

Eye problems are a common reason for rabbits to be taken to the vets, but there is a variety of reasons for eye disease. Veterinary surgeon, Sonya Miles discusses the causes and treatments (page 8).

We are all acutely aware of the environmental impact we have on the planet and the need to reduce this, but have you ever considered what you can do to change how you care for your rabbits, to help this? Rabbiting On Veterinary Adviser, Guen Bradbury opens our eyes to the problem (page 16).

We all know that rabbits can smell a tasty treat at 20 paces, but what are your rabbits' senses actually like? In a new series, starting in this issue, we will look at each different sense. Veterinary student, Tom Ingleton, begins with the sense of sight (page 36).

That is not all! There is plenty more to help keep you entertained, including our regular Gardening with Twigs feature, looks at fruit trees (page 11), how rabbits show signs of stress (page 12), liver lobe torsion (page 18), nursing at home after dental treatment (page 28), true life story of bonding (page 30), Back to Nature (page 38) and hand rearing baby rabbits (page 40), plus the usual news and views.

Without your input, letters, photos and stories there would be no Rabbiting On, so please do continue to send them in. See you in 2022, take care

Claire Speight Editor

Our Winter Star Bunnies are Thor and Gizmo, sent in by Grace Deakin

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BEHIND THE SCENES AT A RABBIT FRIENDLY PRACTICE

Surgical neutering

By Rachel Sibbald, Registered Veterinary Nurse

A rabbit receiving an intramuscular injection of pre-medicant drugs, restrained gently and covering the eyes to reduce stress



This rabbit has received a pre-medicant, so is relaxed, and has an intravenous cannula in the cephalic vein



We know it can be very daunting to hand over our beloved rabbits to a veterinary team when the time comes around for neutering. Neutering in male and female rabbits is essential for a whole host of reasons, and is recommended by the RWF. I am a nurse at an RWF rabbit friendly practice, so, have written this feature to give you an idea of what happens. In times gone by, rabbit anaesthesia and surgery had a bad reputation and many people were put off routine neutering of their rabbits. Thankfully, things have changed for the better, and there has been huge advancements in rabbit anaesthesia protocols. Whilst no procedure comes risk free in any species, there are certain steps which rabbit friendly practices take (which have been verified by the RWF Veterinary Adviser, Richard Saunders), to ensure up to date medicine and surgery is being practiced.

Admission to practice

As prey animals, rabbits are very sensitive to the sight and sound of predators. A separate waiting area for rabbits away from barking dogs is ideal, and in practices where this is not possible, many will take your rabbit to another quieter area of the practice where possible. Severe anxiety and stress before a surgical procedure often means anaesthetic drugs don't work as effectively, or can heighten the effect, so owners can also help by bringing bonded companions, familiar foodstuffs, familiar bedding and a secure carrier. Please avoid bringing rabbits in your arms, even the most confident human bonded rabbit can act unpredictably if predator species are present.

Pre-anaesthetic preparation

As rabbits should not be starved before anaesthesia, the veterinary team will house your rabbit in a suitable enclosure with food and water. Acclimatisation to the environment is important before being handled by strangers and therefore this usually happens when the team is calculating drug protocols for your rabbit's anaesthesia. The use of Pet Remedy is often employed to help reduce anxiety when in the hospital and a newer pheromone based product is due out soon.

Pre-medication

Historically, rabbits were 'gassed down' for surgical procedures, which involved placing the rabbit in a box and administering anaesthetic gas or by holding a mask over the face, until it became unconscious. Rabbit friendly practices will never 'gas' or 'mask down' completely conscious rabbits as this can be stressful. In place of this practice is the use of premedication drugs, which are usually given by injection. These drugs are usually sedatives and are often combined with strong opioid painkillers prior to the procedure taking place.

Induction of anaesthesia

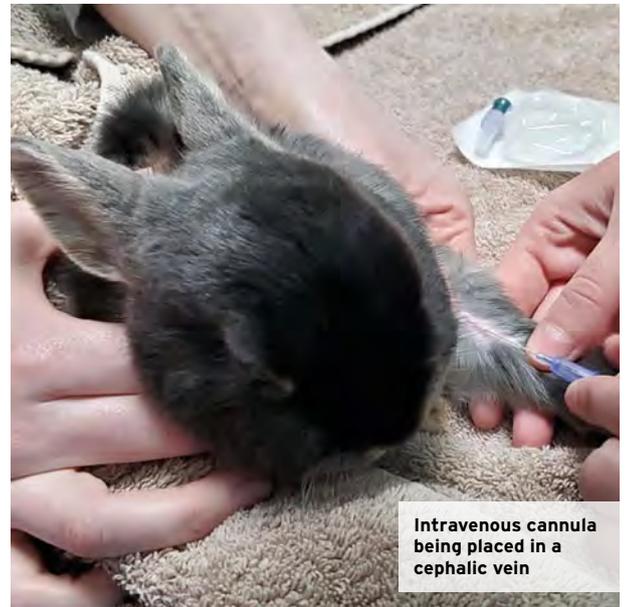
Induction of anaesthesia is the process of rendering the rabbit completely unconscious so that the surgical procedure can take place. Sometimes this is achieved with the use of higher doses of injectable pre-medicant drugs alongside painkillers, and other times vets may prefer to use a different drug and give this by intravenous injection (straight into the vein). Intravenous access (by placing an intravenous cannula) during anaesthesia provides gold standard care, as it allows your vet to administer further anaesthetic drugs, fluids, pain killers and emergency drugs straight into the vein if needed. In larger rabbits, the marginal ear vein will be used for cannula placement, and so you may notice when you get your rabbit home, the fur from the edges of their ear/s have been clipped. In smaller dwarf breeds this can be difficult and the cannula may be placed into the cephalic vein (a vein in the front leg).

Maintenance of anaesthesia

This is usually achieved either by higher anaesthetic doses of the premedicant drugs or by inhalation of anaesthetic gases. In either case, oxygen will be provided to your rabbit to support their respiratory system. To ensure your rabbit's airway is open and to administer inhalational gases safely, intubation



Endotracheal tube in place, connected to an anaesthetic machine. She is positioned on her back for her spay surgery



Intravenous cannula being placed in a cephalic vein

is achieved by using an endotracheal tube (a small tube placed directly into the trachea) or V-gel (a device used to sit over the rabbit's trachea). Unfortunately, due to the rabbit's large tongue and teeth and very small airway, placement of these devices can be challenging, even to very experienced vets and nurses. This is particularly true in dwarf breeds, such as Netherland Dwarfs, and in breeds with flatter faces (bracycephalics), such as mini lops. In some rabbits, oxygen and/or anaesthetic gases will be administered by face mask to avoid causing any trauma to the rabbit's delicate airway.

The surgery

Castration in male rabbits is usually a relatively quick procedure and involves removal of both of the testicles. Sometimes the vet may choose to inject local anaesthetic into the testicles whilst the rabbit is under anaesthetic, to help block out any pain associated with the surgery (like when the dentist numbs our mouth prior to extracting teeth). In female rabbits, the procedure is more complicated and involves surgically opening the abdominal cavity. This procedure tends to be longer and more painful; therefore some vets may choose to keep female rabbits in hospital for the night. Whilst surgery is taking place, your rabbit's anaesthetic is monitored very closely by a Registered Veterinary Nurse. Heart rate, respiratory rate and effort, temperature and nerve reflexes are all monitored continuously throughout to ensure the rabbit is at the right anaesthetic depth for the procedure. The use of specialist anaesthetic equipment, such as pulse oximetry, capnography and ECG, are also commonly utilised in rabbit patients and provide additional information to the vet and nurse about how the rabbit is doing.

Recovery

Veterinary studies have identified that the recovery period is the riskiest time in the anaesthetic process. As prey animals, rabbits can become very stressed when awakening in a strange environment. They may also feel uncomfortable (with mild hypothermia) and may experience some pain (even after receiving pain relief).

Rabbit friendly practices will ensure the rabbit is recovered from anaesthesia in a warm, quiet environment and monitored very closely by a member of the veterinary team.

Oxygen tents are easily kept warm and the lights have been dimmed to reduce stress. As we know rabbits can suffer from gastrointestinal stasis after periods of inappetence, it is imperative rabbits eat post-surgery. Syringe feeding may be required in rabbits who do not eat post-operatively. Most practices will schedule a post-op appointment with a vet or nurse to examine the surgical wound a couple days after surgery. Pain relief should be provided in both male and female rabbits after surgery to continue at home, and it is important, as owners, to follow veterinary instruction as identifying pain in rabbits is difficult.

With thanks to the owners of the beautiful bunnies showcased in this article. To find a list of rabbit friendly accredited practices please go to <https://rabbitwelfare.co.uk/rabbit-welfare-association-fund/our-work/rabbit-friendly-vets/rabbit-friendly-vet-list/>.

The practices on this list have demonstrated high standards of rabbit specific care and will have members of staff who regularly review and update standards of care to remain on the list each year. This feature looks at one practice, other practices may have slightly different protocols when anaesthetising rabbits. However, if your practice is listed on the RWAf rabbit friendly list, you can be assured they have met the standards outlined.



Testicles being surgically removed during castration



Recovering from surgery in a warm and quiet environment

When they are happy rabbits 'binky' jump for joy, but this never involves an object

SHOW JUMPING Fun for everyone?

By Dr Emma Milne, Veterinary Surgeon

Until quite recently, I had no idea that show jumping for rabbits even existed. I was planning on doing a talk on the ethics of rabbit shows for the RWF welfare day, and during the research rabbit show jumping came up. So, I started to look into it and was amazed at the popularity of this 'sport'. It's very big in Scandinavia, especially Sweden, but is growing hugely in popularity in the UK too, and has seen events at some of the big pet shows. But the question, as ever is, just because it's fun for the humans, does it mean that it's fun, or even acceptable, for the rabbits?

Online videos

If you Google 'show jumping rabbits' you get a huge number of YouTube videos on the subject, including some dramatic slow-motion ones of epic fails. I also came across an interview from a pet show saying that the rabbits are all trained to do it using positive reinforcement and therefore do the activity of their own free will. I wasn't convinced of this.

Firstly, the rabbits have to be on harnesses to ensure that they do not escape. For those of you who read my article on harnesses, you will be aware that I am not a fan. Rabbits are prey animals that feel most secure if they can flee and hide. Harnesses make this impossible, so will undoubtedly cause stress and possible injuries, if and when the rabbits try to escape. Horses that are grazed in fields with show jump fences are never seen popping over the jumps for fun on their own, and I strongly suspect that the rabbits, if let off their harnesses, would be the same. In fact, lots of the videos show rabbits that are clearly unwilling and need a tap on the rear end to impel them to jump.

Pushed to the limit?

Many of the jump competitions are to find which rabbit can jump the highest or the furthest, with animals being



Rabbits are prey animals that feel most secure if they can flee and hide

gradually eliminated until the champion is crowned. By definition, this is encouraging owners to push their animals to their physical limits, which I think is questionable from a welfare point of view. We know that by nature rabbits hop and run and when they are really happy they do their wonderful 'binky' jump for joy, but this never involves an object, and the jumping in these competitions is clearly far from a binky.

Distress

When you watch the videos, you will see rabbits crashing through fences and quite often not even seeming to see some of the higher poles, so just head-butting their way through. More disturbing for me were the

occasions where you see rabbits clearly not wanting to come out of their carriers or, when picked up to reposition them for a fence, thrashing to escape in a way that all vets fear because the risk of spinal or leg injuries is so great. I felt that there were clear signs of distress and stress on too many occasions to make it OK for the animals.

From the rabbit's point of view

Just as we have said before on so many of these topics, we need to think about these activities from the animal's point of view. All of the animals competing will have travelled some distance to compete. In some cases, actually flown abroad. Many animals find travel stressful because they don't like changes in routine and feel unsafe when they can't hide or escape. This can be bad enough for essential vet visits, but when it is done for human entertainment is highly questionable. Travel also usually means that rabbits are separated from companions, another well-known cause of stress.

Upon arrival, from the welfare perspective there are many of the same problems that conventional showing presents. Rabbits will be in strange environments, surrounded by noise, strangers, unknown rabbits and also, in some of the mixed pet shows, within the sight, sound and smell of predators like dogs, cats and raptors. Add to this the fact that they are taken into a large, open space and you can easily imagine the fear that comes with it.

There may be long periods spent in small cages, with limited access to food and water and total lack of companionship, space to move freely or lie down or stretch out and inability to indulge in behavioural needs like digging, hopping, exploring and hiding. You can argue, of course, that this is a small number of weekends per year in many cases, but does that make those times less significant for the animal?

Similarities between rabbits and horses

It may sound crazy but I have long argued that rabbits and horses have much in common. They are grazers, evolved to live on long fibre. They are social animals and find comfort in numbers and with close companions of the same species. We have a tendency to keep them in totally inadequate spaces, be it hutches or stables, isolated and unable to behave normally. We feed them foods that are convenient for us but totally inappropriate for the species, causing chronic dental and gut problems.

For years we have forced horses to engage in sport that is dangerous and unnatural so that we can be entertained and have a nice day out. And tragically, in my view, we have now started subjecting rabbits to the same. As adults, we have total control over the animals in our lives. In my view, the animals we welcome into our homes should be treated with



Photo: D Staggs

Rabbits love to dig and confinement for entertainment does not allow this

respect and should certainly have their needs met. But above and beyond this, we have a duty to consider very carefully everything we subject them to. With our current understanding of animal needs and especially their behavioural and social needs, I feel it is simply unacceptable to do activities like this that are purely for our benefit. When it comes to any species, their interaction with us and the life we provide them should be the best it can be. Animals are not a commodity that we should use to seek attention. It's time we all accepted that animals are not for human entertainment.

By nature, rabbits hop and run



Photo: Geza Farkas-Shutterstock

Flash's inquisitiveness rubbed off on Pongo. He became braver and more exploratory

BONDING AND MEDICATING

A veterinary surgeon's experience

By Dr Richard Saunders, RWF Veterinary Adviser

Like all vets, I give dosing information to my clients and advice on how to get medication into their rabbits; I take histories from them, and know what questions to ask and how to interpret the answers, and I can empathise with a tricky medical or behavioural issue their animals are going through. But, after a couple of events with my own rabbits, against the backdrop of Covid, I'm a little more aware of all of these things, from both sides of the consulting room table, and wanted to share a couple of stories, which are everyday to many readers, but gave me some new insights.

Finding love again

Early on in Covid we lost our little old Netherland Dwarf Leela, companion to the rather younger lop Pongo, which was the first of a few problems. Leela had her own health problems, abandoned at a veterinary practice, mostly blind, partially deaf, but with lots of lively character. When the time came to put her to sleep last year, thoughts turned to what was best for Pongo.

Now at this point I would advise a client to work with a local rescue to bond their surviving rabbit with a suitably sized, aged, neutered female rabbit. And this is where we hit the first problem. Covid has created a triple whammy for rescues: Covid safety precautions made bringing rabbits to and from them more complicated, reducing the numbers they could bond; funds were tight due to reduced fundraising opportunities, and with vets understaffed, the backlog for neutering rabbits was growing. Added to this, the increase in the numbers of pets, especially rabbits, over lockdown, and a perfect storm developed.

So, even with some excellent local rescues in and around Bristol and Reading, it took longer than ideal to set Pongo up with a new companion for bonding with, but luckily they were able to carry out the bonding. This was particularly lucky, as things didn't go according to plan, and it was only with the third rabbit that Pongo bonded. I was glad to have the expertise of Bristol Rabbit and Rodent

Rescue to find the perfect companion for Pongo. I think it's really important for vets to work closely with other rabbit professionals, as our skills are complementary.

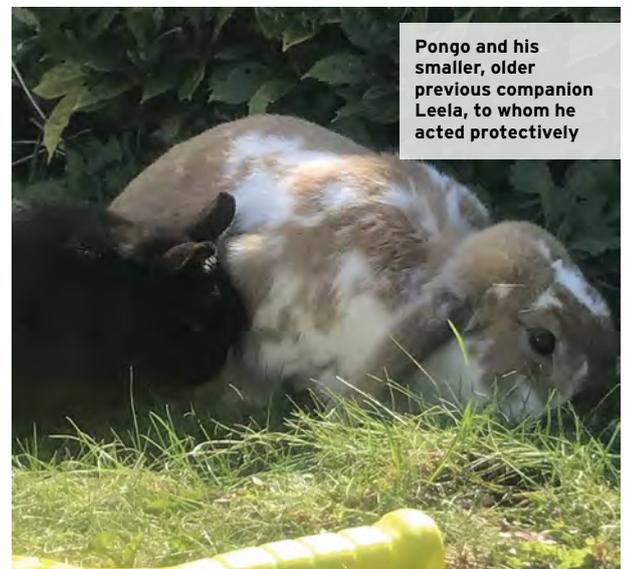
Instant change

The difference in Pongo was almost immediate, and hugely positive. I'm the first person to advise owners to rescue a second rabbit, to give a solitary rabbit a bonded companion, but even I was surprised at the difference in his behaviour from both being with Leela, and then alone until Flash and he got together. His behaviour with Leela had been quite careful, fairly slow and subdued, as if going at her pace and looking after her. And by himself, even with as much enrichment as possible, he didn't exhibit as many positive behaviours as he had with her.

All this changed with Flash. As obviously expected, there was lots of mutual grooming and other behaviours one can only perform as part of a pair or group, but it was the increase in physical activity that surprised me. From being a little more sedentary than I would have liked, despite attempts to increase his activity levels, feeding at many different points, and some extra sections of Runaround, he soon matched his younger companion binky for binky. Her inquisitiveness



Pongo and his new, younger companion, keeping him on his toes



Pongo and his smaller, older previous companion Leela, to whom he acted protectively

rubbed off on him too, becoming braver and more exploratory (I know, I'm being anthropomorphic here, it's down to the increase in shared vigilance between the two of them making them more confident, but it's hard not to see it as him becoming braver under the influence of a frankly very mischievous bunny).

New perspective

It's given me both new respect, and more empathy for owners medicating rabbits when I pre-emptively treated him with *E. cuniculi* medication before bonding. I've obviously medicated a lot of rabbits in clinical settings, as well as some we were treating for *E. cuniculi* for a month, but it is very different when it's your own. At this point, trying to gain trust, it's very difficult to do something unpleasant to them, and break that bond, and I'm not the only one to feel that way, I know, which is something I don't think vets fully appreciate (I know I didn't).

Recently, I've been speaking to some other owners with rabbits who are on very frequent medication. In one case, this involves eye drops, in another, a large number of different meds, and in many cases the rabbits are quite shy, and owners have valid concerns about losing that trust, the stress of any catching, handling and medication causing its own problems. I think vets focus on the technical concerns around medicating, and don't fully consider the increasing difficulty of medicating for long periods of time, and especially the emotional toll on owners.

It's a cliché that having an animal is the only way to truly understand them, and that having an animal with health and behaviour problems is the only way to truly appreciate that too, but it is true, and I think it's made me a lot more understanding!



Medicating, when trying to gain trust is not easy to do



Flash changed Pongo's behaviour almost instantly

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OCULAR DISORDERS IN RABBITS

By Dr Sonya Miles, Recognised Advanced Practitioner in Zoological Medicine

Figure 3:
An ophthalmic examination using an ophthalmoscope after fluorescein stain has been applied



Photo: S Miles

Ophthalmological diseases in rabbits are commonly seen by veterinary surgeons in practice, and as such it is important for both vets and owners to understand the implications of the various diseases that can occur in this species. It is important to remember that a quick diagnosis and therefore swift treatment, with any eye problem, is vitally important. As an owner, if you ever notice anything wrong with your rabbit's eyes, you should contact a rabbit savvy vet as soon as possible. Many of the ocular diseases that occur in rabbits are painful, however being a prey species, the signs of pain may not be obvious. It is, however, important to address this discomfort as soon as possible to avoid secondary issues, such as gut stasis, as a result of the eye disease.

Veterinary examination

When your rabbit savvy vet assesses your rabbit, it will not just be their eyes they should be assessing, but the whole patient. It is common that rabbits have more than one issue present which in some instances can be linked to particular types of ocular disease. The patient assessment should be done in a calm, fear-free way, with minimal handling wherever possible. The patient's vision should be assessed, often done by having them navigate obstacles. Their periorcular organs, such as the surrounding skin, eyelids

including the third eyelid, the external eye structures such as the conjunctiva, sclera, cornea, as well as the medial canthus of the eye and nares for discharges should be assessed¹. It is also wise to consider underlying dental disease as a potential cause of some ocular disorders. Auxiliary tests such as imaging of the head (radiographs or ideally CT scanning (Figure 1)) with and without contrast media, intraocular pressures (IOPs) (Figure 2), fluorescein staining and ophthalmoscope examination (Figure 3) as well as tear film production tests may need to be performed based on the presenting signs¹.

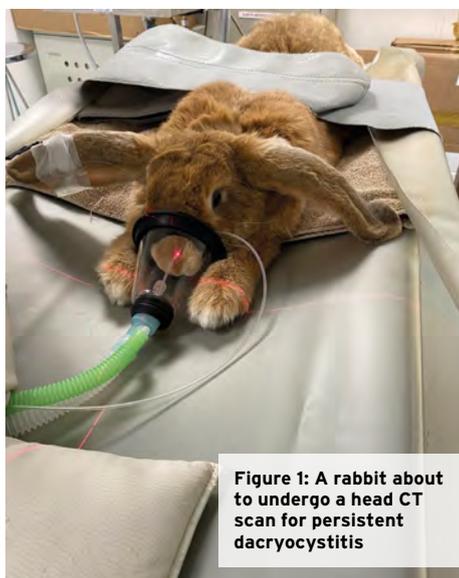


Figure 1: A rabbit about to undergo a head CT scan for persistent dacryocystitis

Photo: S Miles



Figure 2:
Demonstrating how intraocular pressures are taken in the conscious patient

Photo: S Miles

External eye disease

Rabbits can suffer from many ophthalmological disorders, all of which require swift diagnosis and treatment. Blepharitis is the term for swelling of the eye lids and will be caused by a variety of infection, inflammatory and neoplastic causes². This includes *Treponema cuniculi* infections, also known as rabbit syphilis, which can also cause swelling of the genitals. This infection is passed to the babies from the mother, with the diagnosis best being made by identifying the causative spirochete organism on conjunctival cytology. Treatment would involve three penicillin G injections, each given one week apart.

Dacryocystitis (inflammation of the lacrimal sac) is a common presentation in rabbits and is often a frustrating condition to treat¹ (Figure 4). This condition is characterised by a mucopurulent discharge from the corner of the eye, and in severe cases may be associated with a distention of the lacrimal sac, secondary conjunctivitis, keratitis and even corneal ulceration^{1/2}. Dacryocystitis can often be associated with underlying dental disease, requiring advanced imaging and contrast studies to diagnose (dacryocystorhinography), resulting in an obstruction of the tear duct and in chronic cases of dacryocystitis, tear duct rupture. Primary bacterial



Figure 4: Severe dacryocystitis in a rabbit with a damaged tear duct as a result of severe dental disease

infections have been reported, specifically *Pasteurella* spp, however this is not the only bacteria implicated, many of which are commensal bacteria found in healthy rabbits, therefore care should be taken when interpreting results. When infections are suspected, samples should be taken directly from the tear duct for culture and sensitivity testing, to target antibiotic therapy. Antibiotics, alongside non-steroidal anti-inflammatories and regular tear duct flushing (Figure 5) under local anaesthesia, are often considered to manage this disease. A cure, however, in some cases, will never be possible.

Primary conjunctivitis has been reported in rabbits, but its clinical relevance is questionable¹ and in my experience, conjunctivitis is often secondary to other issues, such as dental disease, eye lid abnormalities, chronic dacryocystitis and poor husbandry condition, such as high levels of ammonia due to poor hygiene^{1/2}. Underlying causes should be thoroughly investigated with culture and sensitivity testing and conjunctival cytology being performed. Some eye lid abnormalities may require surgical correction, alongside analgesia and suitable antibiotics to improve the conjunctivitis. In some cases, viral conjunctivitis should be considered, specifically in unvaccinated rabbits with a suspicion of having myxomatosis².

Conjunctival overgrowth (Figure 6) is a syndrome unique to rabbits that involves growth of a fold of conjunctival tissues arising from the limbus of the eye and extending 360 degrees towards the axial cornea². This syndrome doesn't appear to be painful, but is often difficult to correct, even surgically, with regrowth often occurring within a matter of weeks to months². In this author's experience, young male lops seem particularly predisposed.

Rabbits have many glands that surround their eye, that have various roles such as producing the tear film that



Figure 5: How the tear ducts are flushed in the conscious patient, under local anaesthesia

lubricates the eyes. Prolapse of the deep gland of the third eye lid is reported in rabbits¹ (Figure 7), this condition is known as cherry eye in other species and requires surgical intervention, either removal of the gland or replacement using a pocket technique. If left untreated, the tissue will become damaged and infected and will be incredibly painful for the patient. This surgery is often complicated by the gland's close association to the large venous sinus that is situated behind the eye. As such, surgical cases are often only undertaken by experienced rabbit surgeons.

External trauma is one of the most common causes of corneal ulceration, the specific traumatic incident may often be missed, but scratches from companions, hay pokes and scratches from any undergrowth the rabbit moves through are common (Figure 8). Corneal ulceration can also occur from other ocular problems, such as entropion, a condition where the rabbit's eye lids roll inwards, causing the hairs of the eyelid to rub the cornea. Entropion can be congenital or acquired due to ocular swelling and often requires surgical correction, alongside treating any corneal ulceration.

Clinical signs associated with corneal ulceration include blepharospasm,

epiphora an conjunctival hyperaemia, purulent secretions and internal ocular signs such as anterior uveitis¹. If you have concerns that your rabbit has a corneal ulcer, it is advisable that veterinary treatment is sought immediately. Your rabbit savvy vet will then apply a dye called fluorescein and perform a full ophthalmic assessment to outline the extent and depth of the ulcer. Samples for cytological assessment and culture and sensitivity testing may be performed prior to

starting treatment, which will often involve analgesia, topical antibiotics and in severe cases serum or corneal repair drops. Ulcers where the surrounding epithelium is being overrun may require debridement under sedation or general anaesthesia, and when ulcers become very deep and rupture, an enucleation may need to be considered. On occasion, corneal ulcerations can result in corneal abscessation, which again may require surgical intervention depending on its severity.

Disease within the eye

Rabbits can also suffer from intraocular disease (disease within the eye). Uveitis (inflammation of the uvea), due to the uvea's close association to other intraocular structures¹, is commonly associated with almost all intraocular diseases such as cataracts. Cataracts in rabbits are frequently diagnosed in rabbits (Figure 9), often associated with *Encephalitozoon cuniculi* infections (intrauterine) and a subsequent phacoclastic uveitis (Figure 10). Foetal and



Figure 6: Conjunctival overgrowth



Figure 7: Prolapse of the deep gland of the third eye lid, also known as cherry eye



Figure 8: Large corneal ulceration as a result of entropion

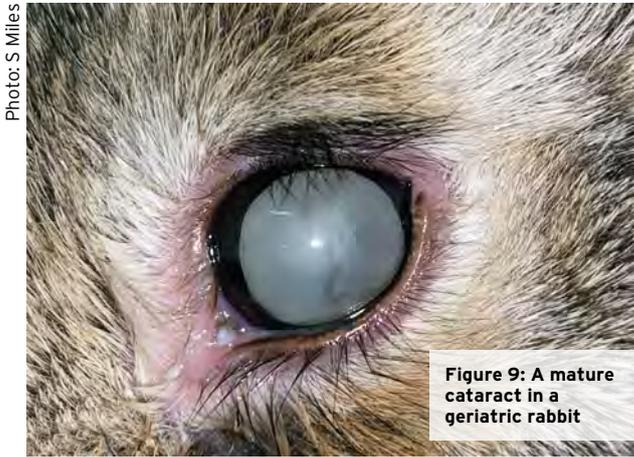


Figure 9: A mature cataract in a geriatric rabbit

congenital cataracts as well as cataracts associated with diabetes are also reported in rabbits. Surgical removal of cataracts is possible in rabbits, with a procedure called phacoemulsification; this procedure, however, is often cost prohibitive and only performed at specialist referral centres.

Glaucoma is the term used for an increase of pressure within the eye (Figure 11). Some breeds of rabbit, such as the New Zealand White rabbits, have a genetic



Figure 10: A picture demonstrating phacoclastic uveitis as a result of an *E. cuniculi* infection

predisposition to developing this condition, developing glaucoma at around 3-6 months of age. Glaucoma can also be secondary to severe uveitis or intraocular neoplasia, which in comparison to other ocular diseases is uncommon. Secondary metastatic lymphosarcoma is the most commonly reported cancer of the eye in rabbits¹.

Clinical signs associated with glaucoma include buphthalmia, corneal oedema, exposure keratitis, excavation of the papilla, and attenuation of retinal vessels, although the intraocular pressure can drop back to reference values because of atrophy of the aqueous



Figure 11: Corneal oedema (blue colouration) as a result of glaucoma

humour producing ciliary body and increased size of the affected globe¹. Medical treatment can result in temporary management of the disease. However, sadly, a cure is unlikely, with rabbits often requiring enucleation if the disease is poorly controlled (Figure 12). As with uveitis, glaucoma is a very painful condition, and as such analgesia should play a role in therapy, alongside medications designed to control the intraocular pressure.

Exophthalmos is a condition where the eye of the rabbit protrudes more than it should (Figure 13). This is most commonly seen unilaterally when the rabbit is suffering from a retrobulbar abscess, most often as a result of dental disease. Sadly, in most cases, when clinical signs become obvious, the patient is often in the late stages of diseases, often associated with significant destruction of the surrounding bony structures. To gauge the degree of disease present it is advisable that vets perform advanced imaging, such as a CT scan of the head, to get a true representation of the degree of damage present. Sadly, sometimes, the damage is too great and euthanasia may need to be considered. In those cases where surgery is an option, it is advanced and often deformative surgery that is required. There will likely be a lengthy post-operative recovery periods, with significant owner involvement being needed. Antibiotic therapy alone is highly unlikely to work and even with advanced surgeries involving tooth extractions and marsupialisation of any abscesses, the long term prognosis is poor. Other less common causes of exophthalmos include tapeworm cysts (*Taenia serialis*) as well as retrobulbar neoplasia and salivary mucoceles¹. If exophthalmos occurs bilaterally then a space occupying lesion in the thorax such as a neoplastic mass like a thymoma could be the cause. This results from the mass putting pressure on the venous return to the heart and subsequent engorgement of the large venous sinus behind the eye.

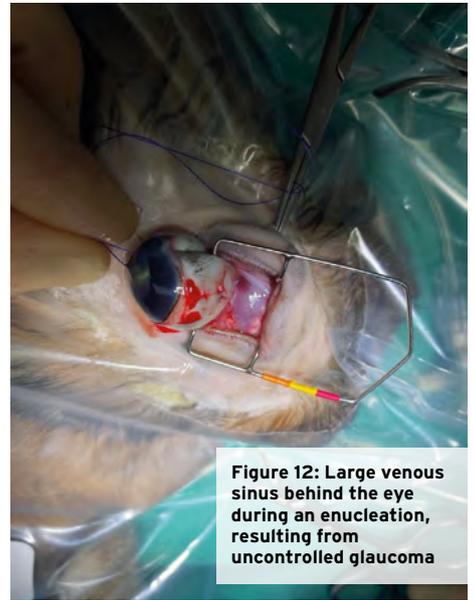


Figure 12: Large venous sinus behind the eye during an enucleation, resulting from uncontrolled glaucoma

Conclusion

In conclusion, ocular disease in rabbits requires swift diagnosis and intervention, and in some instances expert treatment and surgical intervention. If you ever have any concerns about your pet rabbit's eyes, make sure you seek veterinary advice as soon as possible.

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Figure 13: Unilateral exophthalmos, as a result of a retrobulbar abscess, from severe end stage dental disease

CHOOSING A FRUIT TREE FOR THE RABBIT GARDEN

By Twigs Way



Crab Apple 'Evereste'

Beautiful blossom and tempting fruit, what could be more perfect for a rabbit garden than a fruit tree? From a human point of view, a tree of any type is an ideal garden plant. They usually need little tending to after the first year or so, can be obtained in a wide range of sizes, and provide an interesting 'vertical aesthetic', as the designers say. They can also provide shade on a hot day and shelter from rain, for both rabbits and humans. However, not all trees are equal in the eyes of the rabbit, and so it is worth spending some time considering which tree is best and where to place it.

Other types of trees

This article is really about fruit trees but you could, of course, also consider a willow tree, or a hawthorn, or even a hazel or birch. However, none of these will give you the satisfaction of having spring blossom and edible leaves and fruit, and even the occasional more chunky twigs, and branches, that can be nibbled on after the tree has reached a suitable size to need pruning. So, having settled on a fruit tree, the question is which one?

Fruit tree types

Trees that bear 'stone' fruits, such as plums, damsons, apricots, cherries etc, are not considered suitable as forage for

rabbits, because of the chemicals they contain. Therefore the choice of tree is most practically down to apples, crab apples, pears, and the 'English' quince (*Cydonia oblonga*), NOT the Japanese quince (*Chaenomeles*). Each have their merits and your choice may depend on how much this is for the rabbit and how much for you. Personally, I adore the palest pink late spring blossom of the quince, but the rabbits generally ignore both the fruit and the leaves, so perhaps not a winner for them.

Pears and apples both produce edible leaves that can be eaten fresh or dried for winter and the fruit can also be fed in very small quantities, or you might even try eating it yourself. If the tree is to be in a garden where the rabbits are free-range, you may need to put up barriers around the area of possible 'fruit drop', from mid-summer onwards. This is not only because rabbits may over-eat on the fallen fruit, but also because a large cooking apple or pear plummeting to the ground could cause considerable damage to the rabbit snoozing in the shade underneath. Choose the location carefully, to ensure the tree does not shade out a flowerbed or drop fruit directly onto rabbit housing etc.

Crab apples trees are also covered in blossom in spring and produce a much smaller fruit (depending on the variety, anything between a cherry and a plum in size). These are a much sourer fruit and not considered edible to humans except in jams and jellies, but rabbits love them. They also have the advantages of having less sugar in them and staying on the tree through the autumn and into winter - providing a feast for the birds as well as

a display of golden, green or red 'baubles'. The only disadvantage of the crab apple is that they are generally a smaller tree and will need less pruning and shoot removal, which means that there is less to feed the rabbits.

Different sizes

You can buy fruit trees either potted up or, at certain times of year, 'bare root'. Bare root can most often be obtained from a specialist tree nursery who will have a much wider variety available than a garden centre, and often be cheaper as well. These are now almost all online, so don't worry if there is not one close to you. They will also give you advice on whether a particular tree variety needs to be pollinated with another one (i.e. you need two trees) or whether it is 'self-fertile'. Fruit trees are usually grown on what is called rootstock and this will determine the eventual size of the tree (if a rabbit does not take care of that), and a good nursery will also list all the options available so you have the right size tree for your space. Even the same variety of tree can come with many different size options.

Planting

The best time to plant is in late autumn or early spring. Dig a hole, much larger than the pot the tree comes in (or the bare roots) and work a lot of compost in with soil to back-fill. Water well in and water if there are dry spells over the following year. Unless you have purchased quite a large tree, there is probably no need to add support but do use a tree protector otherwise the tree will be eaten as a snack before it gets going! Alternatively you can grow quite a large tree in a pot if you remember to water frequently and re-pot as it gets larger.

My recommendations

Try Crab Apple 'Butterball' or 'Evereste' or just the native wild crab apple, or for a full size apple, an old-fashioned Cox's Orange Pippin, or for earlier fruit Worcester Pearmain. If you would like to try a Quince then Vranja, or the smaller Serbian Gold.



Blossom on *Cydonia oblonga* 'Vranja' (Quince)



A healthy apple tree with fruit and leaves for humans and rabbits

IDENTIFYING SIGNS OF STRESS

By Laura Dixon, Research Scientist

Rabbits need a social companion

Photo: J Warrington



Stress occurs when an animal needs to make large or prolonged physiological and/or behavioural changes in order to cope with their environment¹. Stress can be from physical factors, like injury, physiological factors, like hunger or thirst, or behavioural factors like an inadequate enclosure.

The affects of stress

Single, or short-term stressors, may be tolerable for animals, and in some cases may even be beneficial. For example, the stress of being hungry may motivate the animal to find the food it needs to survive. However prolonged stressors, or multiple stressors occurring at the same time, can lead to the animal suffering.

Aside from just contributing to poor mental welfare, stress can affect the immune system and lead to or contribute to illness and disease². Chronic stress can also affect cognition, which is the way that animals take in information and process and store that information³ and can lead to more pessimistic views of the environment⁴. Having control or choice in a situation can help reduce the stress but as captive animals, rabbits are dependent on us to make the correct decisions for them.

Signs of stress in rabbits

Rabbits are a prey species, so much of their behaviour has evolved to be subtle and not draw attention to themselves⁵. This means that signs of stress in rabbits can also be quite subtle too. In order to identify signs of stress, it is important to know what normal rabbit behaviour is like; although this may vary a bit between individual rabbits. It is also important to have your rabbit checked by a vet if you notice behaviour changes or signs of stress, to make sure that there isn't an

underlying health issue causing the behaviour or that the stress hasn't led to a health issue⁶.

Common behavioural indicators of stress you may see in rabbits are^{6,7}:

- **Ear and body position and movement** - Rabbits who are feeling stressed may flatten their ears tightly against their body and hold them still. They may also curl up into a tight ball or crouch or flatten themselves against the ground - this is often referred to as tense and body down. They won't be moving much and won't be showing normal interest in their environment. Basically, the rabbit is trying to make themselves appear very small, has tense body posture and is fairly still. Of course, some rabbits may curl up in a ball to sleep, so it's important to know what is normal behaviour for your rabbit.
- **Lack of nose twitching** - Content rabbits are almost constantly moving and twitching their nose, even if they are laying down and relaxing. A stressed rabbit may tuck their chin in and stop twitching their nose.



Their environment should be stimulating and encourage exploration

Photo: Runaround

- **Moving or running away** - When stressed, some rabbits may become very still but others will try to escape the stressful situation. Rabbits may run or chase each other as a form of play but they may also try to move away from you, another rabbit or another animal if they are stressed. If you know your rabbits' normal play behaviours or if they consistently run away from particular people/animals/situations or seem very skittish in certain instances, then you may suspect something is causing stress, especially if other stress behaviours are observed too. Some rabbits may also thump their back legs if they are feeling anxious or threatened.
- **Hiding** - This is normal behaviour for rabbits, and they should always have the opportunity to move away into a secure hiding spot. However, excessive hiding, meaning that the rabbit will not leave their safe hiding spot, is a sign that something is causing anxiety and stress⁸.
- **Not eating or drinking/lack of or absence of droppings** - Stress may disrupt a rabbit's normal eating, drinking and toileting routine. This can be very dangerous due to the way a rabbit's digestive system works, and rabbits that are not eating, drinking or toileting normally should be taken to the vet immediately⁹.
- **Heavy/fast breathing or panting** - Rabbits are normally nasal breathers. If you see your rabbit breathing through their mouth or panting, this is a sign of serious stress/respiratory disease. The rabbit should be removed from the stressful situation as soon as possible. Heavy or fast breathing may also be a sign of stress; although if the rabbit has just finished a play bout and has been running around, this may be due to physical exertion, so context of the breathing is important.
- **Stereotypic or abnormal behaviour** - These are repetitive or seemingly functionless behaviours that can develop when an animal is under chronic stress or frustration from the inability to perform an important natural behaviour pattern. Some stereotypic or abnormal behaviours that can occur in rabbits are repetitive chewing on a part of their environment, pacing or circling in their enclosure or over-grooming, possibly to the point of fur removal or skin damage.

What to do if your rabbits are stressed?

Animals will be stressed if they are unwell or in pain, so as mentioned above, it's important to have them checked by a veterinary surgeon to make sure they are healthy. You should also evaluate your rabbit's environment to make sure it is meeting all of their needs and allowing for the performance of normal behaviours. We covered what a suitable environment for a rabbit entails in the Five Welfare Needs series (Summer 2020 Rabbiting On) but in brief⁵ - a rabbit needs a social companion, an area a minimum of 3m x 2m which includes a shelter of 2m, which enables them to take 3 hops, and to be able to rear up fully in their enclosure without their ears touching the ceiling. They should also have access to a larger space where they can run and play. Rabbits should have constant access to forages and fresh clean water. As a prey species, they also need places to hide and places where they can get away from their companion if they want. Their environment should be stimulating and encourage



Content rabbits are almost constantly moving and twitching their nose, even if they are laying down and relaxing

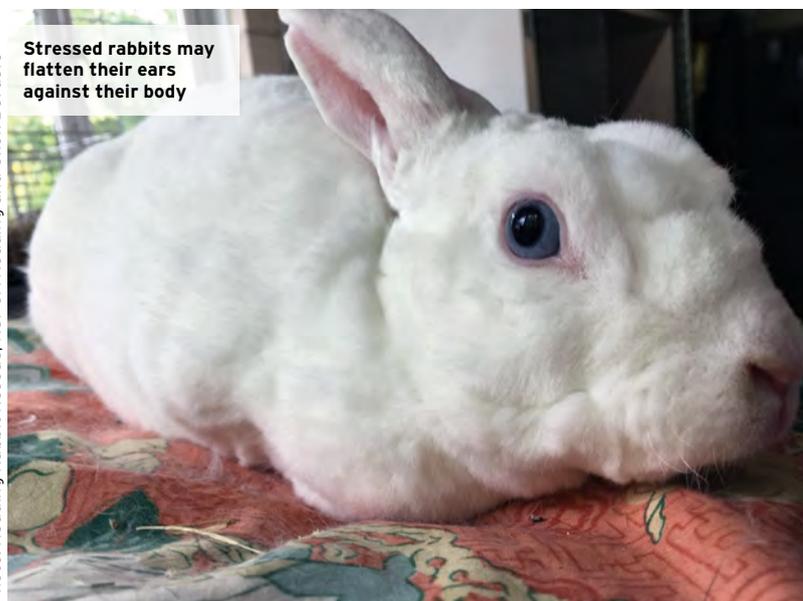
exploration, for example, you can hide veggie snacks around the enclosure, and have items to chew on.

Rabbits that aren't stressed will have a more relaxed body posture and ears that are up and moving to listen to sounds. They will also have an actively twitching nose, even when sitting or lying down. You may also see them 'binky', which is a jump and twist in the air as they are running about⁵. However, each rabbit will normally perform different amounts of these behaviours, so the first indicator that something may be wrong is a change in normal behaviour or routine. This is why it's so important to know your own rabbits and how they behave, in order to ensure a happy, healthy life for them.

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Stressed rabbits may flatten their ears against their body



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READERS' LETTERS

All photos: A Kellaway



Logistically having fosters and your own can be quite challenging

Life as a rescue volunteer

For many rescues there are lots of individuals working behind the scenes. From the people who answer the emails, the fundraisers, the fosterers, all the way to the transporters who help get the animals from A to B.

I started fostering in early 2019, having a bit of a menagerie of my own and some spare space, it seemed natural to combine my love of animals with my passion for helping the ones in need.

My husband, though supportive, was naturally wary about how I would feel when the time came to rehoming. I can't tell you honestly that I've not failed a few times since then, but mostly I've been okay. It's important to remember that everyone you permanently adopt is a space less for those more needy. Also, as part of a fantastic rescue who carry out very thorough home checks I can be confident that these much loved temporary family members are going off to incredible forever homes. As much as I get attached, I do my absolute best to love them and let them go.

Not all the rabbits that come into foster are easy. I've seen some very shy rabbits in my time fostering, and many that can lunge and nip out of fear, frustration from previous cramped conditions or hormones. As a fosterer, you may see medical conditions you may not have first-hand experience of.

Fostering can be heart wrenching and you need quite a strong resolve not to let it break you. You don't always get to save them all. If you unfortunately lose one it hurts just as much as if they were your own. Fosterers do it because we care, you can't turn that side off when it's inconvenient.

Logistically, having fosters and your own can be quite challenging. You need to be very mindful about quarantine. My accommodation is completely colour coordinated, so even the simple things like a dustpan and brush are not shared. Any new intakes that haven't been vet checked yet are always seen to last, and I

wear changeable aprons and wash hands in between.

Dealing with the public is challenging. I'm an animal person, an introvert really, but nothing makes me more angry than people not looking after their animals properly. The same applies when rehoming, people can be quite upset when you try to explain their setup or feeding routine needs tweaking. We always try to help educate people, and whilst many are fantastic at working with us, occasionally people can be rude and offensive.

Bonding takes up a huge amount of my weekend, the rabbits need full supervision and careful management. It's also incredibly stressful, and you get really invested in the outcome. When you work a 40hr week, this quickly eats in to your family time, and I am very fortunate to have such a wonderfully supportive husband.

The best advice I can give anyone interested in volunteering is know your limits. I currently have two long-term foster bunnies, one space for bonding bunnies and I also foster guinea pigs as well. Be very clear with your rescue what you can and can't do, don't be afraid to communicate with them and get support if you need it. We are all still learning, you are not expected to know everything.

Amy Kellaway



Biosecurity is imperative

In support of RWAf lop-eared and brachycephalic image stance

I was delighted to see the announcement from Richard Saunders in the Autumn 2021 issue of Rabbiting On magazine, confirming that the RWAf will no longer be using images of both brachycephalic and lop-eared rabbits, except to highlight breed specific health and welfare concerns.

As a rescue, we see so much suffering caused by humankind's desire for 'cuteness'; lops who suffer with painful, reoccurring ear infections and abscesses, brachycephalic rabbits suffering from chronic tear duct blockages and horrific dental disease, so many rabbits that are quite simply born to suffer. It's needless and heart-breaking having to contend with and attempt to treat the continued intakes of rabbits who are surrendered with breed related health issues.

These rabbits originate not only from back yard breeders and high street pet shops, but sadly also reputable breeders too.

It is my belief, as a rescuer and someone who is passionate about animal welfare, that in order to improve rabbit welfare, society needs

to be encouraged to move away from viewing extreme breeds such as the mini lop as desirable, and see those rabbits with more natural features, who are up eared and have longer faces as normal and more 'attractive'.

By removing images of both lop eared and brachycephalic rabbits from their media, RWAf is once again leading the way. Bravo!

Lea Facey

Manager, The Rabbit Residence Rescue (charity 1148016) & Founder of Hope4Hoppers Rabbit Sanctuary

Editor's note: The stance from the RWAf on lop-eared and brachycephalic rabbits can be found on page 26 of the Autumn 2021 Rabbiting On. Please note that some images of lop-eared and brachycephalic rabbits may appear in Rabbiting On and on RWAf media over the coming months, due to the time lag in commissioning and publishing features, or if there is a justified reason.

As rabbits primarily eat grass and hay, they already have a relatively low carbon footprint

Photo: A Britton-Shutterstock

REDUCING THE ENVIRONMENTAL PAWPRINT OF YOUR RABBITS

By Guen Bradbury, Rabbiting On Veterinary Adviser

Most of us probably didn't choose rabbits as a pet because of their low carbon footprint, but that is certainly a benefit of owning rabbits rather than dogs or cats! With increasing awareness of the environmental crisis, many of us are wondering how to reduce the environmental damage caused by ourselves and our pets. Given that rabbits primarily eat grass and hay, they already have a relatively low carbon footprint, but there are still many things you can do to ensure that you are caring for your rabbits and the planet at the same time.

Take care with what you buy

To reduce your rabbit's carbon footprint, you want to buy as little as possible and keep the rabbit as healthy as possible. This is because when you buy things for your rabbit, you are inadvertently contributing to the waste associated with manufacturing, packaging, storing, shipping, and advertising of the product. You also want to keep rabbits healthy to avoid the environmental damage caused by pharmaceutical products (and because it's vital for their welfare!). This means that you need to provide them with rabbit companionship, a grass or hay-based diet, a suitable environment and enrichment.

Where to get your rabbits?

Rehoming an animal is always more environmentally friendly than buying one. Buying an animal, rather than rehoming an animal, means that you are contributing to the problem of pet overpopulation, you aren't helping to reduce it.

Additionally, rabbits from rescue centres are usually neutered - preventing them breeding is also important to reducing overpopulation. It also increases the likelihood that two rabbits will form a stable relationship - this improves their health and reduces the risk that either will need to be rehomed again.

What forage to feed your rabbits?

One reason that rabbits make such environmentally friendly pets is that they eat almost entirely grass and hay (and no meat), which means that

they require a relatively small land area to produce their food. Ideally, your rabbits would be able to graze all year round on grass in your garden and require very little supplementation - but few of us have access to this much grass. Even so, growing some grass, or handpicking grass nearby, will help to reduce the environmental costs of bringing food in.

Most of us still have to buy hay to provide enough forage for our rabbits all year round



Photo: R Walters



Rabbits can make very environmentally friendly pets providing you follow a couple of simple rules

Even doing this, most of us still have to buy hay to provide enough forage for our rabbits all year round. When you're buying hay, try to buy in large quantities - local farmers will often sell bales individually. These bales are not wrapped in plastic, they are very fresh, they have long strands of hay (which stimulate normal feeding behaviours), and by buying local, you are reducing transport costs and supporting the local economy. You need to keep the hay dry once you buy it - a watertight wheelie bin stores almost an entire bale (put it in, cut and remove the strings, and then feed as needed).

What other food to feed your rabbits?

Most people like to feed small quantities of pellets (maximum one egg-cup-full per day). The carbon footprint of transporting the ingredients to the manufacturing plant, manufacturing the food, packaging it, and then distributing it is significant - so consider buying large bags of pellets, decanting some into a smaller container, and then sealing the remainder in the large bag to keep it fresher for longer.

Rabbits also can be fed small quantities of green leafy plants. Rather than buying green leafy vegetables from a supermarket, go foraging for edible weeds and fresh fruit-tree branches. Feeding these will also ensure that your rabbit gets a broader range of micronutrients and reduces the likelihood that they will overconsume just one plant. If you want to feed bought vegetables, why not give your rabbits scraps from green leafy plants that you're eating - strawberry leaves, broccoli or celery ends, or bits of kale or cabbage. This will reduce your food waste and reduce the carbon footprint of your rabbits.

What to give your rabbits as toys?

Reduce the number of toys you buy, and if you can provide cardboard boxes, fruit tree branches etc. Additionally, most rabbit toy products and beds are wrapped in plastic packaging that is hard to reuse or recycle. Good free toys include fresh fruit-tree branches, old cardboard boxes, outdated phone books (if you still receive them!), and old towels. Make



Many rabbits use litter trays, but environmentally conscious owners have to think about what goes in them

them more interesting by stuffing them with fresh hay or hiding pellets or leafy greens inside them. Cardboard boxes can also be used to make digging boxes, and if folded up against the wall where a rabbit chews, they provide a very distracting option to chew (in the wild, rabbits strip bark off trees, and the tearing of cardboard boxes mimics this sensation in a more acceptable way than wallpaper does - just make sure they are not swallowing pieces of the cardboard).

Additionally, don't invest in soft beds. Rabbits prefer to rest in boxes of hay - they like to eat where they sleep. Boxes of hay can be easily changed, composted if soiled, and don't require washing like fabric beds.

What to use in your rabbits' litter trays?

Many rabbits use litter trays, but environmentally conscious owners have to think about what goes in them. Clay-based litters are bad for the environment and bad for rabbits (they are dusty and clump in the rabbit's gut when the rabbit grooms itself) so shouldn't be used.

Most pet litters are made of compounded sawdust or wood-based materials - these are often shipped a long way and are hard to compost. If you want to use them, make sure you select a brand that is FSC certified (Forest Stewardship Council logo means that the products are made with well-sourced wood-based materials). However, a better option is recycled paper litter, as it is recycled and more easily composted. The best option, however, is old newspaper - in addition to the benefits from recycled paper litter, old newspapers don't have to be shipped or processed after the newspapers are used. With any litter, use just enough to absorb wetness (you don't need to fill the tray high because rabbits don't bury their droppings). On top of the newspaper or other litter, use plenty of hay - rabbits like to feed where they toilet, and hay is more comfortable for their feet.

What to do with your rabbits' soiled bedding?

Soiled hay and paper-based litter can be easily composted at home and makes valuable fertiliser. Wood-based litters can be composted but they take longer and require more mixing to compost well as they tend to clump.

What routine medications should you give to your rabbits?

Reducing your rabbit's carbon footprint means minimising your rabbit's need for medication. Vaccination is important - it reduces the risk that your rabbit will contract one of the diseases and require veterinary care. However, rabbits should not be treated routinely for fleas, worms, or parasites - these drugs are harmful pollutants that damage ecosystems by killing other invertebrates. Most rabbits do not have contact with other animals and so the risk of transmission is low - you only need to treat them if they have an infestation that is causing a problem.

Conclusion

In conclusion, rabbits can make very environmentally friendly pets providing you follow a couple of simple rules: buy as little as possible and keep the rabbit as healthy as possible. This is good for your rabbit's welfare, for your bank balance, and for the planet. What's not to like?

LIVER LOBE TORSION

By Nathalie Wissink-Argilaga, Veterinary Surgeon

Photo: S Holder



Rabbits generally present with non-specific clinical signs

Rabbits can present with signs of abdominal pain for a variety of reasons, and symptoms can develop quickly, become life threatening and, in the majority of cases, will require prompt veterinary attention.

Abdominal pain can be caused by gastrointestinal (GI) stasis, intestinal obstructions, intestinal infections, urinary tract issues including bladder sludge and bladder/kidney stones, reproductive tract issues such as uterine neoplasia (cancer), ectopic pregnancies and testicular torsions, abscesses in the abdominal cavity, tumours in the abdomen and referred pain from muscles or the spine.

One of the less commonly thought of abdominal problems is liver lobe torsion. This is a condition where one of the lobes of the liver becomes twisted, causing loss of blood flow to the area and subsequent pain.

Causes

The causes for a lobe torsion are still largely unknown. Some of the potential causes that have been suggested include dilatation of the stomach or intestines. Secondary to this distention, the ligaments that hold the liver in place may distend and weaken, leading to the torsion of the liver lobe. Other possible causes include trauma, parasitic diseases, bacterial infections, liver tumours and congenital abnormalities of the liver ligaments.

The liver in rabbits has four main lobes, including the caudate lobe and three cranial lobes (right, medial left and lateral left).

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In a high number of cases the lobe that twists is the smaller caudate lobe, due to its narrow attachment to the rest of the liver.

Signalment

Liver lobe torsion tends to be seen more in older rabbits with a median of 5.15 years, although younger animals can be affected. There does not appear to be a sex predilection which means that both males and females can present with this condition, and nor does there seem to be a breed disposition.

Symptoms

Rabbits with liver lobe torsions generally present with non-specific clinical signs, including reduction or loss of appetite, lethargy, reduced or absent faecal production, gastrointestinal stasis symptoms, hunched posture, and abdominal pain. The severity of the clinical signs can range from very mild to sudden death caused by shock or haemorrhage.

In some cases, however, it might be an incidental finding at post-mortem examination; this suggests that, in some cases, rabbits might survive with supportive treatment alone or no treatment at all.



Post surgical Hospitalisation will be required

Diagnosis

Diagnosing liver lobe torsion will require a thorough history and physical examination. The presentation tends to be quite acute, with clinical signs developing within a day of the torsion. On physical examination, the rabbit might present subdued, the guts sounds might be reduced or absent, gastrointestinal gas might be felt on abdominal palpation and reaction to palpation of the abdomen will indicate pain. Heart rate and respiratory rate can be high. Some rabbits might also present an increased body temperature.

Further testing your veterinarian might want to perform include:

- **Blood tests:** these might show anaemia (reduced red blood cells) due to blood loss around the torsion site and an increase of liver enzymes, including alanine aminotransferase (ALT), alkaline phosphatase (ALKP), aspartate aminotransferase (AST). Other parameters might be abnormal.
- **Radiographs:** radiographs aren't always very useful to diagnose this condition and an experienced clinician will be required for correct interpretation of these, especially in the early stages. Radiographs might show an enlarged and rounded liver, gas in the gastrointestinal tract, indicating secondary intestinal hypomotility (stasis) and free fluid in the abdomen in later stages. At the beginning they might appear normal.
- **Ultrasound:** ultrasonography tends to be more



A gas filled caecum in a rabbit with severe gut stasis causes abdominal pain



The condition can affect young rabbits

rewarding in these cases. In later stages, an enlarged liver might be seen, the twisted liver lobe might be identified as having a different architecture and using colour flow Doppler (this identifies blood flow to and organ), reduced or loss of blood flow to the twisted lobe might be identified. Free fluid might also be seen in the abdomen.

Treatment

Rabbits with liver lobe torsion can present with mild to very severe clinical signs. Initial supportive care will be very important to stabilise the patient and prepare them for more invasive treatment such as surgery.

These rabbits will need fluid therapy to correct any dehydration and treat shock. Providing pain relief including opioids, such as methadone or buprenorphine and anti-inflammatories, such as meloxicam, will be paramount to ensure a positive outcome. Supportive care for gastrointestinal stasis will also be necessary, and will include assisted feeding and gastrointestinal motility stimulants such as ranitidine and cisapride. Your veterinarian might also decide to give antibiotics due to the potential for endotoxic shock developing in these cases.

Surgery

Most cases of liver lobe torsion will benefit from surgery to remove the affected lobe once the patient is stable enough for anaesthesia. The rabbit will be placed under general anaesthesia and an exploratory laparotomy (opening the abdomen up) will be performed. Abdominal surgery in rabbits is always tricky, especially due to risk of possible side effects such as the development of gastrointestinal stasis post-surgery and the development of adhesions. Before embarking on this, we must try to ensure that the patient is as stable as possible and ideally have an experienced surgeon performing the procedure.

The affected lobe will be identified, and a suture will be placed around the end of the affected lobe to stop any bleeding. Once the suture is in place the affected lobe can be surgically removed. The outcome and recovery tend to be improved if surgery is performed.

Some cases have been managed successfully with just medical treatment as described above. Unfavourable outcomes after surgery might be due to the presence of secondary intestinal obstructions and gastrointestinal stasis, shock, bleeding and sepsis.

Post-operative monitoring for pain, bleeding and gastrointestinal stasis will be paramount for success, and the rabbit is likely to need hospitalisation for continued fluid support, pain relief, assisted feeding and prokinetic treatment.

The prognosis tends to be good with adequate surgical and supportive treatment, but medical treatment on its own tends to carry a guarded prognosis.

Follow up care will include post-operative checks of the surgical wound, and repeat blood sampling to ensure that any abnormal parameters have returned to normal.

RESCUE POINT OF VIEW - Adapting and coping during Covid, and beyond

The rescue is experiencing a higher number of rehome requests

All photos: A Chamberlain

By Alice Chamberlain, Windwhistle Warren Rabbit Rescue and Elaine Line

Covid-19 has been life changing for us all, and I believe it has been the most challenging period I have faced during my 21 years of running Windwhistle Rescue.

The pandemic has had a huge knock-on effect to animals and many rabbit rescues are most definitely encountering serious crisis.

With lockdown lifting, rabbit adoptions slowly restarted



During the first lockdown in March 2020, new rules/regulations were introduced to which we needed to adapt. This was a very difficult period and we needed to try to be patient and not panic.

Our volunteers

I can never thank our volunteers enough for all they do.

Our volunteers are such an amazing group of rabbit loving people and friends, always cheerful and optimistic, the type of people you need around you when you are struggling.

We looked at how volunteers could work as safely as possible. Fortunately, most of our rabbit rescue areas are outside; we designated working areas which reduced volunteer contact and face masks with disinfectants and hand gels were used when necessary.

However, volunteer life was far from normal, we missed the close social contact that is so important to us all, especially that all-important hug which always helped us all through those difficult days.

Talking to our volunteers, we understood their own individual pandemic fears. We have an amazing, special lady in her late 70's who we all love dearly but had to make the sad decision that we did not want her to be at undue risk in attending the rescue. We missed her so much throughout the lockdown period, and it was wonderful to recently see her back at the rescue.

Travel

As the pandemic unfolded, we were lucky that the Government extended the law allowing travel up to a 40-mile radius, to animal rescues. This was so welcome, as at least some of our rescue rabbits were able to travel to their forever homes.

Our rescue is located close to Wales, and we regularly adopt and rehome rabbits from this area, the changing rules between England and Wales became very challenging during the lockdown period.

A rabbit needing a particularly gentle and quiet home was the first lockdown bunny who travelled to North Wales, from here in West Gloucestershire. The rabbit, called Marilyn, went via a bunny run of super bunny helpers, all driving a leg of the journey to enable collection by her new mum on the Welsh/English border.

Sustaining animal feed for the rescue was such a worry. We travel to a

Cardiff cash and carry to buy feed at the most economical rates. Just the day before March 2020 lockdown, we had eighty 10kg sacks needing collection; it was difficult to find clear rule clarification for maintaining feed supplies for rescues, but we hoped driving for collection of animal feed was a necessity, and so we made the journey.

Rehoming safely during the pandemic

With lockdown lifting, rabbit adoptions slowly restarted. The rescue used social distancing, mask wearing when necessary, and conducted meet and greets at our gate entrance, enabling the rescue to carry on without too many difficulties. We have been grateful for how courteous and thoughtful visitors have been. The rescue is located separately from our home, otherwise we know reopening following lockdown would have been much more restrictive.

Video calls and FaceTime calls became the new normal for our home checker. New owners and their prospective rabbits being included within FaceTime calls, were now not meeting each other until arriving at their forever home.

Funding worries

Our rescue is non-profit making and we run a rabbit boarding facility to keep the rescue going. When holidays were cancelled this was a massive blow and I wondered if we would recover.

However, we were soon amazed by the wonderful innovative ideas of help. One lady made beautiful face masks, another lady who already does wonderful work in authoring and selling rabbit forage books, has been busy knitting and selling dish cloths.

Volunteers spent hours setting up book and craft online sales. Supporters joined in collecting and donating books and making craft items. As further Covid rules relax, another of our volunteers is doing a car boot sale, and we also received much appreciated donations and vegetables.

We were so lucky to be gifted £2,000 in a will from a lady called Christine Mason. Christine was an animal lover and her executors had been tasked with distributing some of her estate to different animal rescues. We feel very fortunate as this has helped enormously to keep the rescue going.

Veterinary care

As the pandemic took hold, previously normal tasks for everyone quickly became more complicated and our wonderful vets also found themselves in exceptionally challenging times. My vet clinics are, like so very many, exceptionally busy, and short-staffed, but they somehow always manage to be there whenever I have an emergency and I am lucky to have such wonderful vets for support.

Obtaining vet appointments for vaccinations and neuters has understandably been problematic. Our local animal hospital has run two complete days of rabbit neuters, taking up dedicated time of three veterinary surgeons and every nurse to safely neuter 20 rabbits. The logistics of my husband, Derek, taking all the rabbits over in his van, and



We feel so grateful to have made it through the past 18 months

then the undertaking of post-neuter medical care is a large and worrying task for us, but it helped enormously that rabbits could then go on to their forever homes.

I would ask that you are all patient with your veterinary practice at the moment - they are all under immense pressures and trying their very best to keep up with demand.

Looming crisis

Currently, as of 7th August 2021, we have 113 rabbits at Windwhistle Warren, with over half of this number awaiting neuter.

I managed to secure four neuter slots booked for 7th September for rabbits reserved and I am not sure when further slots will become available.

During the rehoming process, prospective owners will very often have a rabbit preference. We do try to steer towards the neutered bunnies available, however, if an unneutered rabbit is chosen it can sadly lead to the rehoming not going ahead as owners decide they cannot wait an indefinite period for the rabbit to be neutered.

I also worry that the unneutered rabbits here are at real welfare risk of uterine/testicular cancer. We also have the added behaviour problems developing in non-neutered rabbits and so it feels the pandemic continues its disruption to our lives and our much-loved animals... and now the rabbits purchased during the Covid pandemic are starting to arrive.

The rescue is experiencing a higher number of rehome requests. Two rabbits I helped recently were going to be 'dispatched' by their owner, the garden grave had already been dug for them and their owners just needed to find someone to do the deed.

We feel so grateful to have made it through the past 18 months with such special help and support from our wonderful kind Rabbit Guardian Angels, and thank you all from the bottom of our hearts.

"In memory of Marina Waldron and Zoe Stuckey".

Health



Richard Saunders

BSc (Hons) BVSc
MSB CBiol DZooMed
(Mammalian) MRCVS

Richard was the RWF's last Rabbit Resident at the University of Bristol, and is now the RWF Veterinary Adviser, as well as continuing to see rabbits and other animals in small and zoo animal practice.



Guen Bradbury

MA, VetMB, MRCVS

Guen Bradbury is the Rabbiting On Veterinary Adviser and is a vet who runs a teleconsultancy to help rabbit owners, vets, and vet nurses with behavioural problems in rabbits. Her textbook on the subject, 'Behavioural problems in rabbits' has been available through online and high-street retailers since the end of October 2018.

Behaviour



Carol Valvona

MSc (CABC)

Carol (Bonafido Pet Behaviour And Training) is a member of the Association of Pet Behaviour Counsellors and has a Masters degree in companion animal behaviour counselling. She has rescued giant breeds for a number of years.

Houserabbit Advice



Leo Staggs

Experienced rabbit owner Leo Staggs lives in Kent with his wife, 3 children and 2 house rabbits.

Welfare



Mark Dron

Mark works on a part-time basis as a consulting Animal Welfare Officer for the RWF.

After 27 years as a Police Officer and with Local Authority Trading Standards Units, many of which were spent dealing with Animal Welfare and Wildlife Crime issues, he now provides his services as a consultant to the RWF's Capone Campaign, which identifies and gathers intelligence relating to online breeders and sellers of rabbits around the UK.

We regret that our experts are only able to answer a few questions in the magazine. If you think that your rabbit may be ill, please seek veterinary advice immediately.

ASK THE EXPERTS

Do I need to flea and worm my rabbits?

If you see fleas on your rabbit, treatment will be required

Flea dirt looks like tiny black flecks in the coat

Q I have a cat, and I worm and treat him against fleas regularly on my vet's advice. Do I need to do the same for my two rabbits? They live outside, and as far as I am aware they do not have any contact with wild rabbits or any other animals and I haven't seen any fleas on them, but I am worried they may get them. If I do, what products are safe to use on rabbits?

A This is certainly a question that many owners are asking at the moment. Within the veterinary profession, we are also questioning whether or not we can justify many types of routine anti-parasite treatment for any species, given the environmental damage they cause.

At RWF, we do not recommend routine use of anti-parasite drugs - so no routine flea or worming treatment. The reason for this is that there are no dangerous zoonotic parasites that affect pet rabbits in the UK - this means that your rabbit is not going to pass on a parasite to you that could hurt you badly. Additionally, rabbits are much less likely to get fleas than cats or dogs are. Cats and dogs routinely come into contact with other animals or in places where other animals rest. Cat and dog fleas can bite rabbits but do not typically like to reproduce on them, so the very rare infestations are usually self-limiting (unless the cat or dog keeps reinfesting the rabbits). Fleas do carry myxomatosis, so if you have a cat who hunts, you should treat the cat for fleas to prevent it bringing myxomatosis-containing fleas into your house.

The only reason to treat your rabbit for fleas or worms is if they are making the rabbit ill (or if you see fleas or flea dirt (little black flecks, which are the flea droppings and turn red when wet) on the rabbit and you're getting bitten yourself). Animals have evolved alongside parasites, so if they are not causing a problem, then you do not need to treat them (seeing one worm in your rabbit's poo is not a problem unless your rabbit is sick).

If you are worried that a parasite might be harming your rabbit, the best thing to do is to speak to your vet. There are a couple of topical flea-treatment products that are licensed for use in rabbits: ivermectin and imidacloprid. Never use fipronil-containing products as these can be extremely harmful. Ivermectin or fenbendazole will kill intestinal worms.

Guen Bradbury

Photo: PinSize DemonPooBall

Photo: Jo Hinde

Encourage foraging by mixing together different types of hay, and place them in boxes around your rabbits' living area

Photo: C Fuller



How to bring the outside, inside

Q I live in a flat, so do not have access to allow my rabbits outside, but I want to bring the 'outside, inside!' How can I achieve this? What plants could I have around that they could nibble on safely, can I grow grass inside (and if so in what and how), what enrichment can I provide to encourage natural behaviours such as digging and chewing?

A It is possible to grow grass indoors without a great deal of effort. You'll need a shallow plastic container such as a seed tray, old washing up bowl, or even a disused litter tray. Wheat grass is a good choice as it is quick and easy to grow, and doesn't require much soil. As for other rabbit-friendly plants you could have dotted about, herbs are a great choice. Coriander, parsley, and basil are delicious options for rabbits. For more information on plants that rabbits can and can't eat, have a look at <https://rabbitwelfare.co.uk/rabbit-care-advice/rabbit-diet/>

There is plenty you can do for enrichment. In the wild, rabbits will stretch to reach tasty treats, so stuff hay together with a few tasty nibbles such as dried herbs into cardboard tubes, and hang them at a various heights around the room (under tables and chairs) for your bunnies to discover. Also try

to encourage foraging by mixing together different types of hay, and place them in boxes around your rabbits' living area. Rather than putting all food and pellets in feeding bowls, scatter them around, hide some under plastic pots, or mix them in with the hay.

Regarding digging and chewing, give your bunnies the opportunity to burrow. For this, you'll need to make a covered cardboard enclosure approximately 3ft x 3ft x 10in (1m x 1m x 25cm). In one side, cut a 6in (15cm) square hole. Inside, place a deep layer, at least 1.5in (4cm), of finely shredded paper (from a cross-cut shredding machine) or paper-based litter. Your rabbits' natural curiosity will lead them to investigate, and it won't be long before they set to work gnawing at the hole to make it circular, and bolting inside to start digging!

Leo Staggs

Online selling worries



Some sales platforms do prohibit the sale of animals on their sites

Q Are there any laws regulating people selling rabbits online, either on selling sites or social media? I was under the impression that animals could not be sold on social media, but I see them all the time, and not just rabbits either. Even if the rabbit looks healthy, can these adverts be reported to anyone and taken down or is it pointless doing this, as they will just advertise under a different account? Is this the same for selling sites too?

A Thanks for your question; in short there is no law preventing people from either breeding rabbits or from selling them via online sales platforms. The breeding of rabbits does not require a licence, and aside from the general welfare considerations (usually referred to as the five freedoms), enshrined in the Animal Welfare Act 2006, there is no legislation governing this activity.

You are quite right that some sales platforms do prohibit the sale of animals on their sites, and if you find animals being sold on those platforms you can report them to the Site's Standards Department who will remove the advert and close the seller's account. However, many platforms allow the advertising and sale of animals around the UK, and we are not aware of any prohibitions by any social media organisations of the advertising and sale of animals.

If it can be proved that someone is actively involved in the breeding and sale of rabbits as a "Business" rather than a hobby, then they may fall under the legal requirement for the licensing of Pet Shops, which is administered by local authorities; if operation in the course of a trade or business can be proved, and no licence is held then the breeder can be fined and/or prohibited from keeping etc. animals for a period set by the court. It can be extremely difficult to prove operation as a business, regardless of how many advertisements the individual has placed in any number of sales platforms.

If you suspect that a breeder is running an unlicensed business, or if you believe there are genuine grounds for concern about the welfare of animals they are advertising, you can report the matter to the breeder's

local authority (if they can be identified), and in the event of welfare concerns you should always contact the RSPCA.

The RWF has an intelligence and investigation function that looks at online sales and works to identify traders, so if you do have concerns please contact hq@rabbitwelfare.co.uk or info@rabbitwelfare.co.uk and we will look in to the breeder's activities, and, if offences can be proven, provide statements and evidence to the relevant authority. Please note we do not have the power to take direct action, and in these cases we use intelligence and investigation to identify prolific breeders and ensure that where this happens, the right evidence and information is passed to the right people for legal action(s) to be taken.

If you do make a report to the RWF we will need the following information:

- Details of the trading platform
- Details of the breeder's user name
- Details of their location (where known)
- Details of any contact information (such as phone numbers or email addresses)
- Details of the date and time that you saw the advertisement and details of any other ads they may be running at the same time
- Where possible please also provide a screenshot of the ad and the link.

Mark Dron



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Photo: C Speight

Using Cornflakes with medication can make it easier



TOP TIPS OF THE ISSUE

New to Rabbiting On!

We really want to hear your top tips, and share them with other Rabbiting On readers in each issue.

We are looking for tips on:

- Creating amazing rabbit enclosures
- Providing enrichment and entertainment for rabbits
- Keeping rabbits cool in summer and warm in winter
- Increasing security around your rabbits
- Medicating your rabbits with minimal stress
- Or anything else you think would help other Rabbiting On readers...

This issue's tip comes from Guen Bradbury, Rabbiting On Veterinary Adviser. Guen says "I've had good success with administering Fenbendazole on Shreddies or Cornflakes to make up the correct dose. You have to start at the beginning with mostly cereal and very little Fenbendazole and work up, but by the end of the course, you usually can get away with a much better cereal to Fenbendazole ratio, as the rabbits are less suspicious! Obviously it doesn't work for all rabbits, and definitely not for all medications, but might be useful for some readers".

Please note, we don't advise cereals as a regular treat for rabbits, but they can be very useful when you need them.

Send us a description, and if possible a photo to claire@rabbitwelfare.co.uk - and we will print the best ones in each issue of Rabbiting On.

RABBIT ROUNDUP

Photo: R Walters

Swedish welfare study findings

Rabbits need space, company, an interested owner and stimulating environment

A recent study, undertaken by Dr Marcus Nilsson, a doctor specialising in general practice and occupational medicine, with a Master's Degree in animal welfare, Sweden, looked at how rabbits, through their behaviour, express good welfare. This was then linked with the Swedish Animal Welfare Legislation to see if the minimum requirements in current Animal Welfare Legislation make it possible for companion rabbits to exhibit such behaviours that are counted as positive welfare indicators.

The questions for the thesis were:

- Which positive welfare indicators in rabbits are scientifically identified?
- Do the minimum requirements in animal welfare legislation in Sweden allow rabbits' positive welfare indicators to be fully expressed, or would animal welfare legislation need to be adapted and adjusted?

A literature study, to see what is published in the subject area, was performed in the search engine OneSearch in February 2020. OneSearch is the University library's (Linnaeus university, Kalmar) search service, that includes most databases available via the university library, including the Web of Science. The searches that were made were limited to the years 2001 - 2021, to be reasonably relevant. Only peer-reviewed articles were selected.

There were only a few scientific articles that mentioned concrete examples of behaviours that indicate positive emotions and moods in companion rabbits. Even in the research field of positive welfare indicators regarding the behaviour of animals in general, there were not many studies performed.

It is important to keep in mind that the behaviours examined only indicated what the rabbit experiences "here and now". Based on the current state of knowledge, it is difficult to assess whether any, or some, behaviours would also indicate more long-term positive welfare. This would be an important area for future research.

Five scientific articles were selected that to some extent answered the purpose and questions of the thesis.

The literature review was followed by a section in which Animal Welfare Legislation was evaluated on the basis of the positive welfare indicators in companion rabbits.

The thesis also indicated Animal Welfare Legislation, in its current form, still leaves opportunities open for rabbits to risk significantly reduced welfare when it comes to space, supervision and lack of social contact with other rabbits. A new review of Animal Welfare Legislation would be highly reasonable if one seriously wants to improve rabbit welfare. This could enable more rabbits to express behaviours that are counted as positive welfare indicators.

Positive welfare indicators described in scientific articles for rabbits include expressions of joy in the form of so-called "binkies" and "zoomies", social rabbit companionship and what is called "allogrooming", exploratory behaviour and a couple of different kinds of resting positions when the rabbit obviously feels relaxed, safe, and secure. The Swedish Animal Welfare Legislation would need to be adjusted to ensure that companion rabbits can display the behaviours that are classified as positive welfare indicators.

Given how common, but complex, pet rabbits are, more research is needed on their behaviour and welfare needs, but also more information and knowledge for both current and future rabbit owners.

The most important conclusions are:

- Rabbits need the company of other rabbits
- Rabbits need adequate space and freedom of movement
- Rabbits need a committed and interested owner
- Rabbits need a stimulating environment.

Virgin Money Giving is closing down

Some of our supporters kindly sent us direct donations via Virgin Money Giving. We have just been informed that, at very short notice, the service is going to shut down, and it will be gone by the time this issue of Rabbiting On is published.

If any of our members want to be kind enough to make online donations to the RWA's work, please use Just Giving - <https://www.justgiving.com/rwaf/donate>

2021 RWA Facebook Auction

The 2021 RWA Facebook Auction will be taking place on the 20th and 21st November.

This year, as in previous years, donors have been very generous and we have lots of lovely items going up for auction, many of which would make great Christmas presents for your rabbits!

Just enter RWA Facebook Auction in the Facebook search bar to find our page; here you can see albums of the auctions from previous years to get an idea of the variety of items you can bid on.

As details will be coming via the RWA Facebook Auction page, please follow to get up to date news. Happy Bidding!

We want your rabbit photos!

Your beautiful rabbits are what help make Rabbiting On the fabulous magazine that it is. We are looking for photos for PawPrints, Star Bunnies, to use on Rabbiting On covers and to use to illustrate features in Rabbiting On. Photos of rabbits relaxing, grazing, playing, sleeping, grooming, binkying, digging, running, eating or doing anything else are always required. You need to state that you give permission for the photos to be used in Rabbiting On or by the RWF in their media, and we also need your name and the rabbits'. Photos need to be the best quality that you can get, so when printed in Rabbiting On they do not lose definition. Email your photos to: rwapphotos@gmail.com



Photo: C Collast

Winter Warmers

As the nights get darker and the colder weather sets in, Burgess Excel is giving outdoor rabbit owners some top tips to keep their pets safe and warm this winter.



With their warm coats and thick fur pads on the bottoms of their feet, rabbits can manage colder temperatures quite well - as long as they have adequate shelter. Outdoor bunnies should be housed in a shed or outbuilding during the winter, with space to run about inside when it's wet and chilly.

If your rabbits are kept outside in a shed, make sure that it's waterproof, draught-proof, damp-proof, dry and well-ventilated. Check the roofing felt to make sure it's completely watertight and that all the walls are in good condition, with no water staining, which could mean rain is seeping in from under the roof.

Pile extra hay in sleeping areas for your bunnies to snuggle up in together, and change bedding materials regularly to keep things fresh and dry.

Check water bottles and bowls several times a day to make sure the water isn't too cold or frozen. Also check the bottle metal spout hasn't iced up. Access to clean, fresh drinking water at all times is essential.

Keeping a healthy diet for your rabbits is essential all year round. 85-90% of a rabbit's diet should be high quality feeding hay, supplemented with a small amount of nuggets, suitable fresh greens and the occasional healthy snack.

Burgess Excel has just launched their biggest pack of hay yet, 4.5kg of high quality, British grown Timothy or Meadow hay in a handy resealable and fully recyclable box. The limited-edition high fibre Winter Berry Bakes are also back this year, but be quick - they won't be around for long!

All Burgess Excel products are available at www.burgesspetcare.com.



Burgess Excel has launched its biggest pack of hay yet, 4.5kg of high quality, British grown Timothy or Meadow hay



Wedding favours

Are you planning your wedding? Did you know that we've introduced wedding favours to give your guests? Lovely enamelled pin badges, showing a pair of gold coloured rabbit silhouettes enclosed in a heart, along with a commemorative card. Just search our shop, or use this link: <https://shop.rabbitwelfare.co.uk/product/wedding-favours/>

Our very best wishes to the happy couples.



NURSING CARE AT HOME – Caring for rabbits after dental treatment

By Claire Speight, Registered Veterinary Nurse

Taking care of rabbits after a medical procedure can be daunting, especially if it is the first time you have experienced it.

Our 'Nursing care at home' series aims to give practical advice, and to guide members who may be facing this. In this instalment, we look at what care may be needed for rabbits who have undergone dental treatment.

Why do rabbits need dental treatment?

Rabbits' teeth are open-rooted, so grow throughout their life. On average, their incisor (front) teeth grow about 2-3mm per week, and their molar (back) teeth grow about this amount each month.

Sadly, dental disease is a common problem in pet rabbits, and more commonly seen in lop eared and brachycephalic rabbits, due to their often shortened faces and jaws.

However, saying this, any rabbit can suffer from dental disease. Both genetic and acquired dental disease are possible; the first linked to the genes of the parents, grandparents etc., and the second generally due to dietary and environmental conditions; this is why a diet made up of a minimum of 85% hay and grass is so important, as it helps to provide the correct dental wear and jaw movement. Other reasons for acquired dental disease include damage to the teeth, such as pulling on the wire of their enclosure or injury, such as being dropped when handled. Sadly, once a rabbit has dental disease, the condition will often require repeated treatment for the rest of the rabbit's life.

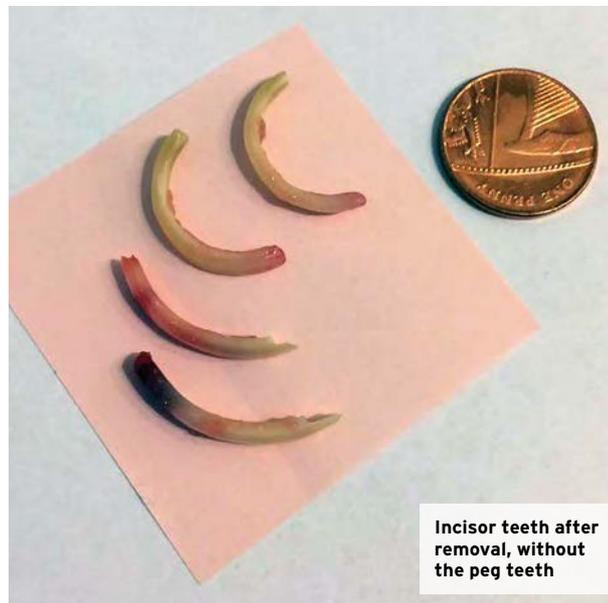
Veterinary treatment

The treatment your vet will need to perform will depend upon the teeth that are affected, and the severity of the dental disease.

For incisor dental disease, where the teeth do not meet correctly and overgrow, your rabbit may need to have the teeth burred (shortened) on a regular basis, potentially every few weeks, or your vet may recommend removal of the incisor and peg teeth (small teeth, which sit behind the upper incisors). Removal of the incisor and peg teeth is performed under a general anaesthetic, but burring can often be carried out with the

rabbit conscious. Removal of overgrown incisor teeth will, in most cases, be curative and rabbits manage perfectly well without diseased incisor teeth, which are generally a hindrance to them. On some occasions the teeth can break or it may not be possible to extract every tooth in their entirety, so the procedure may need repeating. **TEETH MUST NEVER BE CLIPPED. THIS CAN CAUSE THE TEETH TO SPLIT, CREATING AN INFECTION IN THE TOOTH ROOTS, AND IS PAINFUL FOR YOUR RABBIT. NEVER ALLOW ANYONE TO CLIP YOUR RABBIT'S TEETH.**

Molar dental disease is more complicated and will



Incisor teeth after
removal, without
the peg teeth



Molar teeth with spurs towards the tongue

require a general anaesthetic for each treatment. It may involve burring off sharp and overgrown edges of the teeth, or extraction of loose/diseased teeth, and will often need repeating at regular intervals (every few weeks to months) for the rest of the rabbit's life. Dental abscesses may also be found as a result of dental disease, and your vet will recommend further treatment if this is the case.

Care at home

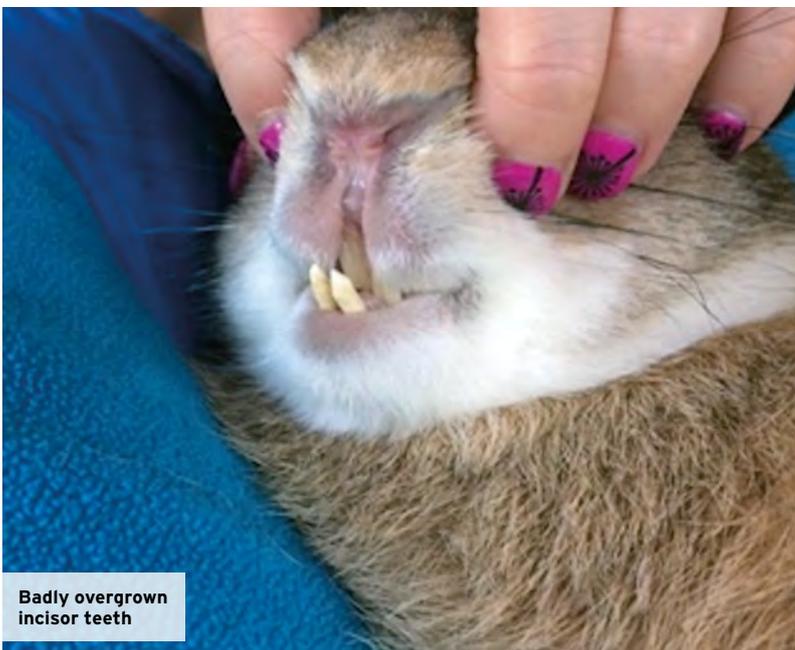
If your rabbit has had their incisors burred whilst conscious, they are unlikely to need any additional care once you get home. Just make sure they are eating, drinking and passing droppings within a couple of hours.

If your rabbit has had a general anaesthetic to have their molars burred or had incisors or molars extracted, then they will require supplementary care when they are discharged from your vet's care and brought home.

You are likely to be required to undertake some of the following home care for your rabbit:

- **Medications:**

Your rabbit may be on a variety of medications, including pain relief, prokinetics and antibiotics, which will need to be given at specific times and doses. Make sure you do not over or under-dose on the medications, otherwise they will not work, and ensure you finish the course that your vet has prescribed. If your rabbit is on more than one medication, it may be worthwhile creating a chart to ensure you do not miss a dose, and you may need to wrap the rabbit in a towel for their own safety when giving the medication. If you are unsure how to give the medication, ask your vet or vet nurse to demonstrate this to you when you collect your rabbit.



Badly overgrown incisor teeth

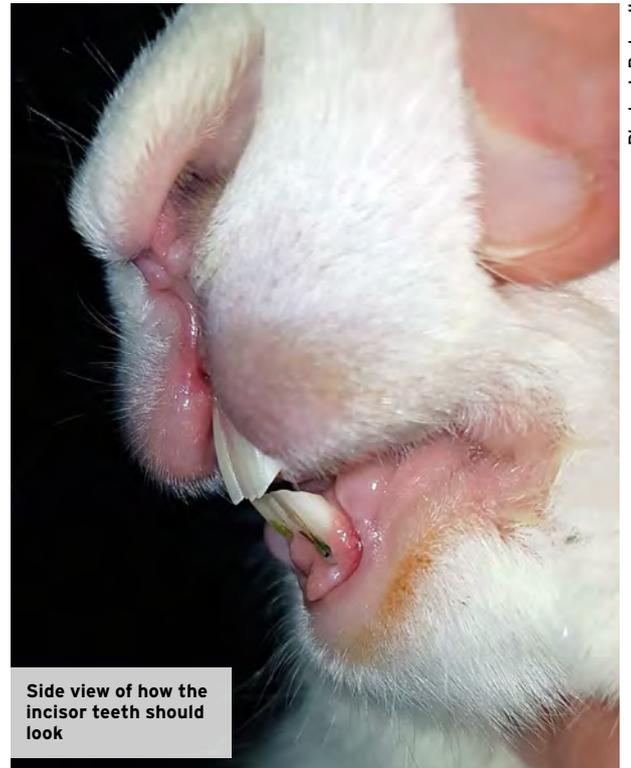
- **Syringe feeding/hand feeding:**

If your rabbit is not eating or not eating enough, you will need to syringe feed them. You will need to ensure you can safely restrain your rabbit to syringe feed them. The best solution is to wrap them in a towel for their own safety. You can also try to hand feed them with their favourite food, to tempt them to eat. Foods such as freshly picked grass, herbs and dandelion leaves are often tempting to anorexic rabbits.

- **Keep them warm and clean:**

Make sure the environment is not too warm or cold. Ensure the area they are kept in is quiet and away from other animals, and keep their companion with them.

They may need assistance to keep themselves clean in the first couple of days, especially if there is any dribbling of saliva from the mouth. It is important to keep their chin and neck area clean and dry, otherwise it will become sore and may be an attraction to flies, and risk of flystrike.



Side view of how the incisor teeth should look

- **Shred greens and hand pick grass:**

Rabbits who have had their incisor teeth extracted can find it difficult to pass food from their lips, into their mouth whereby they can begin to chew it. Having long strands of food can help make this easier. Shred greens into longer strips and hand feed pellets to begin with. You may need to continue to shred their greens, but once eating normally, you should not need to continue to hand feed the pellets.

Conclusion

Dental disease and subsequent treatment is commonly performed on rabbits. It is important to get them eating, drinking and passing droppings and urine as soon as possible, but bear in mind their mouth will often be sore, especially if they have had teeth extracted, or spurs on the teeth have caused sores or lacerations.

Be gentle and careful when you medicate and syringe feed them. Recovery can take several days and if you are concerned that your rabbit is not recovering as expected, telephone your vet for further advice or to be seen again.

PERSERVERANCE TO BOND - One owner's story of the ups and downs of bonding rabbits

By Laura Scott

All photos: L Scott



The first positive interaction after two months bonding - a moment with Cornelia asking for grooms

My most recent rabbit journey started when a friend was looking to rehome their rabbit, Cornelia, after her bonded companion passed away very suddenly at only two years old. They knew the importance of companionship and they weren't in a position to bond her with another rabbit, so they wanted to give her to a good home where she could have that.

Selecting a companion

After adopting her in March 2020, my partner and I started looking for a male companion for her. Unfortunately, two weeks later the country went into lockdown! We looked online at all the local charities that had rabbits for adoption, as most were still taking reservations. When reading about their personalities, we tried to look for rabbits who had similar personalities to her previous partner, as I thought that could be a good way of matching her with a rabbit she got along with. We eventually settled on 'Dylan' from the wonderful charity Pawz For Thought. Sadly, it wasn't meant to be as Dylan passed away from illness around a month later. Pawz For Thought always have a number of rabbits needing homes, so we decided to reserve 'Captain' Tom, who had recently come into their care with his two siblings. These three rabbits had been found abandoned in a box in a field. I fell in love with Tom instantly and brought him home once the vets were able to neuter and vaccinate him, in June 2020.

Starting the bonding

Whilst it can be difficult to find good advice online for bonding rabbits, I tried to stick with charity websites such as RWAf, or any information approved by vets. It's important to note that at no point did I consider or try any stress bonding techniques, especially as they are not a recommended way of bonding rabbits. In hindsight, I wish I'd also been able to take Cornelia on some 'bunny dates' to meet other rabbits first.

Cornelia and Tom were introduced at the start of July 2020. Each rabbit started in adjacent enclosures during the day, where they could get used to each other's scent, but with enough space in between so they couldn't bite each other through the bars. Cornelia was instantly unhappy with Tom when she first saw him, and



Fully bonded - they love to cuddle up together

frequently chased him on the other side of the bars; however, this calmed down after a few days. We then started swapping items between their enclosures (litter trays, teddies, blankets), and eventually switching which rabbit was in each enclosure to get them used to each other's scents.

After about a week, this seemed to be going fairly well. We began introducing them in neutral territory, starting with an area of 7ft x 4ft - this did not go well! Cornelia tried to bite Tom every time she came near him. Unfortunately, there were no obvious indicators that Cornelia was about to attack, such as raising her tail. From the second bonding session onwards, Cornelia showed positive behaviours such as cleaning herself and flopping; however, it became apparent very quickly that a plan of action was needed to get them to a point where they were at least comfortable with each other without intervention. We tried a number of different approaches:

Unsuccessful methods:

- Smearing banana on Tom - whilst this is cited online as being highly successful, it resulted in Cornelia biting Tom more!
- Having a very sparse neutral area (more on this below). I'd read online that rabbits may become territorial over things placed in the bonding area, so I decided to start with very little in there (however, RWAf helpfully advise to give three piles of hay, herbs etc. in their neutral space).



The first time Cornelia (right) and Tom (left) met - they're both very wary, and Cornelia's tail is raised

Successful methods:

- Giving them a larger neutral area. Once we had upgraded to 7ft x 6ft+, they seemed a lot happier as they could interact on their own terms.
- Feeding them greens together at the start of the bonding session. They quickly associated coming into the neutral area with food, which started each session on a positive note.
- Positive reinforcement - this was extremely successful. Thankfully Tom is very placid, so we only needed to target this at Cornelia, as she was the one behaving aggressively. Every time Cornelia approached Tom without incident, she was given a pellet out of her daily food allowance to build a positive association with Tom. Over a few weeks, there was a noticeable decrease in the number of times she tried to bite him.

In hindsight, their initial neutral area was too sparse. I watched a very helpful video on rabbit bonding from Wood Green around 2 months after I had started bonding. One of their suggestions was to have litter trays that both rabbits had used in their neutral area. Things changed instantly after trying this! Within a few days, Cornelia started tentatively grooming Tom whilst he was sitting in one of the litter trays, and she slowly started relaxing beside him. Once it was apparent this was working successfully, we started bringing in blankets and toys with mixed scents, to make them feel more comfortable in the area. Things progressed positively from here.

The next stage of bonding

After it was clear things were improving, it was possible to let them interact by themselves with close supervision. This started the next stage of their bonding process: working out their hierarchy. There was a whole host of new obstacles to overcome, including Tom refusing to groom Cornelia, which earned him quite a few nips. Cornelia also mounted Tom on a number of occasions - he didn't accept this and tried to escape, which sometimes started a dreaded 'bunny tornado' (they were quickly split up). Getting through this stage was less stressful, as they were making visible progress. However, it was more tiring, as the length of their bonding sessions increased to 1-2 hours a day. To check whether they were ready to live together permanently, longer bonding sessions were required. This involved 48 hour fully supervised sessions. However, the first few attempts at this ended in fighting and it became apparent they hadn't quite worked out their hierarchy. The fights were stopped as soon as possible, and the rabbits were kept separate for a couple of weeks before



Swapping teddies - Tom is grooming this teddy that we'd just put given him after it had been with Cornelia

a slow reintroduction.

Whilst they were in a really good place in Spring 2021, spring fever took hold, which pushed us back a couple of months as there was an increase in unwanted mounting by Cornelia! Thankfully, by the end of May this behaviour had calmed down, so we were able to try a longer bonding session again. The thing that had noticeably changed this time was that they were able to work out any issues they had between them without any fighting. They successfully made it through 48 hours, and spent a total of two weeks in their neutral area to cement their bond before they were moved into their permanent enclosure (which had been de-scented with a white-wine vinegar and water mix). They're now living together happily with lots of binkies!

Final words

My final words of advice are: don't be afraid to take things slowly, and seek help if you need it. Whilst bonding over the course of 11 months has been tough, it's worth it to now see them living happily ever after!
"In loving memory of Tom, 23/06/2019 - 16/08/2021" - Laura requested that this story was printed, to highlight that determination and perseverance can pay off when bonding rabbits.



A funnier tender moment when Cornelia flopped next to Tom, a few weeks after starting interacting positively

CAMPAIGN UPDATE

Welcome to another Campaign Update, keeping you informed of our constant fight to make things better for bunnies.

Capone Campaign update January to June 2021 by Mark Dron

In the period from January to June 2021, Mark raised 203 cases; in the same period in 2020 it was 147. 178 of those cases/referrals related to Animal Welfare including illegal hunting; 4 of those cases related to excise fraud, including fuel and tobacco; 5 related to fraud matters; 7 related to CITES (Endangered Species) issues and 9 cases involved miscellaneous matters involving drugs, theft etc.

Agencies to whom we passed intelligence in the period included: HMRC, the police (England, Wales and Scotland), Local Authorities (England, Wales and Scotland) and numerous animal welfare charities with shared aims (i.e. RSPCA, APS and the League Against Cruel Sports).

The trends identified that there was a significant uptick in the numbers of people complaining about petting zoos and similar sites.

We have also carried out a fair amount of work on rabbit meat farm planning application monitoring (in company with other charities and groups).

There has been a noticeable increase in new breeders advertising online since the pandemic and keeping track of these, and monitoring numbers, has been a significant portion of the work in the last 6 months.

This autumn, Mark will be starting a project looking at Wales, Northern Ireland and Scotland and the scale of breeding issues in the devolved administrations.

He is hoping to close down a few significant cases with some successful referrals in the next few months.



Congratulations Emma Milne

In this edition, we say a big congratulations to our columnist and RWAf patron, Dr Emma Milne. Emma was recently awarded the diploma of Fellowship of the Royal College of Veterinary Surgeons and is now an FRCVS. This is the highest award the college gives and was awarded for her 'tireless advocacy' for animal welfare and contributions to the profession in this field.

Mark Dron achieves Chartered Safety and Health Professional qualification

In addition to Mark's work for the RWAf on Animal Welfare matters, he also assists the Senior Management Team with the provision of Health and Safety and Risk Management advice.

Mark has been involved in Health and Safety for many years, but only really started to consider it as a viable career after leaving the police in 2017.

Health and Safety professionals are expected to be members of a professional body called the Institute of Occupational Safety and Health (IOSH), and this membership is in grades, dependent upon the qualifications and experience of the safety professional.

The highest membership level is Chartered, and the process for attaining this is a long one, based on obtaining a level 6 qualification in H&S and then completing a lengthy process of Continuous Professional Development (CPD), evidencing of skills and abilities through a monitored and assessed development programme, and finally a peer based interview to assess the

candidate's suitability to become chartered.

Mark has been working on this off and on since 2018, when he attained his safety diploma, and began the Chartership process in January this year, just as he was recovering from Covid.

Mark passed the final interview at the end of September, and has now been confirmed as a Chartered Safety and Health Professional. This enables him to prove to his clients and colleagues that he can offer professional and valuable services in the field of Health and Safety and Risk Management, and he is looking forward to being able to further develop this field for both the RWAf Management Team and his colleagues and employers outside the Charity.

Rabbit Awareness Action Group (RAAG)

The Rabbit Awareness Action Group (RAAG) is a trusted voice for rabbit welfare, which draws on the combined knowledge of a coalition of experts who have, for over more than 15 years, campaigned effectively through Rabbit Awareness Week (RAW) to improve the lives of pet rabbits.

The formation of RAAG reflects the need to establish an on-going dialogue that ensures rabbit welfare remains high on the agenda year-round. Members of RAAG are committed to raising awareness of the five key welfare needs of rabbits, particularly in light of the Good Practice Code for the Welfare of Rabbits in England by the All-Parliamentary Group for Animal Welfare.

Recognising that rabbits are one of the UK's most owned, but least understood, animals, RAAG is determined to build on the profound and positive campaigning, which 15 years of RAW has already achieved, helping to ensure that the UK's pet rabbits are able to lead happy and healthy lives.

Who is RAAG?

RAAG brings together the expertise of the RAW partners who have successfully campaigned to improve the welfare of pet rabbits for the past 15 years.

Led by Burgess Pet Care, RAAG comprises the RSPCA, Rabbit Welfare Association & Fund (RWF), Wood Green The Animals Charity, Blue Cross and PDSA.

Objectives

1. Continue to improve the lives of the UK's pet rabbits by raising awareness of their five key welfare needs among new and established owners.

- Environment
- Diet
- Behaviour
- Companionship
- Health

2. Champion and raise awareness and understanding of Good Practice Code for the Welfare of Rabbits by the All-Parliamentary Group for Animal Welfare.
3. Use their collective voice to lobby and influence policy makers and decision makers on the importance of improving the welfare of pet rabbits in the UK.
4. Work in partnership with, and provide guidance and support to, the veterinary community to encourage more rabbit-friendly vets' practices.
5. Educate potential pet rabbit owners and help them to decide whether they are ready to own rabbits, and how to prepare to welcome them into the family.
6. Educate retailers about rabbits' welfare needs to ensure that consumers can access suitable housing, food and play equipment.
7. Support and champion existing campaigns from rabbit advocates and ambassadors, including the RWF's 'A Hutch is Not Enough' campaign.
8. Ensure owners are aware of pet rabbits' changing needs as they grow older, including having a life-stage appropriate diet and making adaptations to their housing.
9. Encourage owners to "adopt don't shop" .

Follow <https://www.rabbitawarenessactiongroup.co.uk/sign-our-letter/> or use the QR code opposite, to sign into the RAAG letter.



Research award

A research project by the RWF and academic experts won the poster prize at the annual Association for Veterinary Teaching and Research Work conference in Dublin on 2nd and 3rd September.

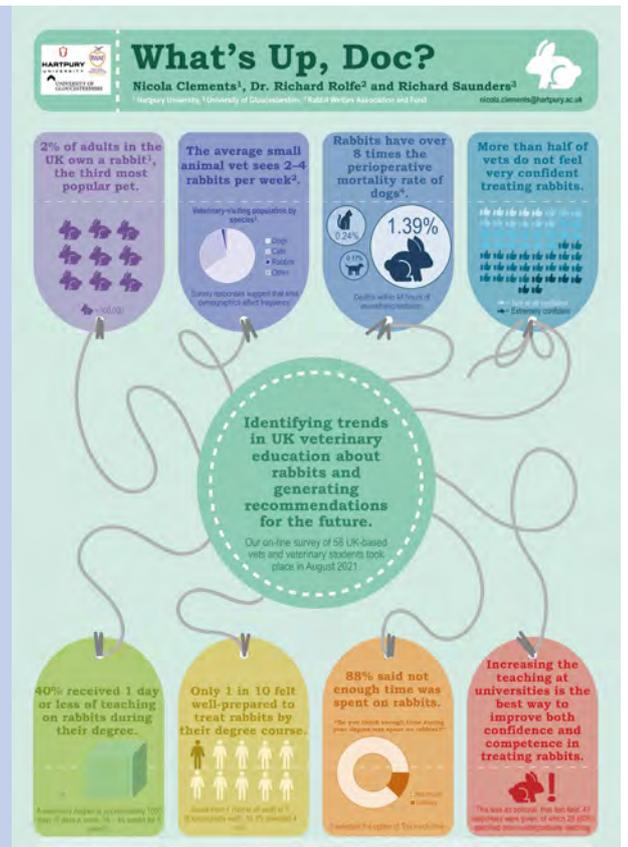
The project aimed to find out about the amount of veterinary education provided on rabbits, and how effective it is perceived to be, through a survey promoted via social media to veterinary professionals.

Results showed that many vets lack confidence, with only 1 in 10 vets feeling well-prepared after graduation. This confidence improves thanks to CPD (Continuing Professional Development), but more than half did not currently feel very confident when treating rabbits.

40% of vets received one day or fewer of teaching on rabbits during their degree. The majority of respondents identified increasing the amount of teaching as the best way to improve competence and confidence in treating rabbits.

The survey was conducted by Hartpury University postgraduate student Nicola Clements, Senior Lecturer at the University of Gloucestershire Dr. Richard Rolfe, and the RWF's Veterinary Adviser Richard Saunders. Though it was a small survey, it offers clear indicators that education on rabbits during veterinary degrees needs to change, and that further research on this is needed.

The winning poster illustrating the research findings »



Petition

Our petition to stop pet rabbits being cooped up in tiny hutches now stands at over 90,000 signatures. Our target is 100,000 so please sign if you haven't already, and of course please share the link as widely as possible. It can be found on our website under *Campaigns > Hutch is Not Enough Petition*. The petition goes hand in hand with the Good Practice Guidelines that were recently implemented to make owners aware of their responsibility to meet their rabbits' welfare needs. We covered the Good Practice Guidelines in the last issue but you can read more about them on the website: *Campaigns > Codes of practice for companion rabbits*.

Car stickers

We hope you love the car sticker that's included in this issue! This came about as a result of a call to the helpline from Elizabeth, a member who suggested that we do something along these lines to raise awareness of the importance of keeping rabbits together. It would be lovely if everybody can display the sticker and help spread the vital message that rabbits should not be kept alone.

Thank you so much for the feedback and the suggestion Elizabeth, we hope you are pleased to see your idea come to life!

Rabbit farm planning applications

This year has seen us oppose planning applications for another three rabbit farms. So far, they have all been refused. Thank you to everyone who donated, which allowed us to raise objections based on planning law, which is the only way to succeed and requires a specialist planning consultant. Because meat farms are out of our charitable remit, we are not able to use our own funds for this. This is why we have to carry out separate fund raisers, and you have always stepped up. We can only do what we do because of your wonderful support, thank you.

RWAF YouTube Channel

Have you seen our new YouTube channel? Our wonderful volunteer Alice Higgs, a third year student studying Animal Welfare and Society at the University of Winchester, has been hard at work improving the look and the content of the RWAF channel. As well as making the channel look more appealing, Alice has been researching what type of videos on YouTube are popular with rabbit owners. This will help us to produce content that will have the biggest impact.

Most excitingly, Alice has hosted some 'reaction' videos, which feature our very own fabulous Dr Richard Saunders, along with our amazing Patron Dr Emma Milne. The videos respond to existing YouTube content and add the important facts about rabbit welfare that viewers and owners need to know. Reaction videos can be made in response to both positive and negative content, but sadly there are countless videos on YouTube that contain terrible welfare messages. The videos will be loaded in the very near future.

The end goal here, other than raising awareness, is to try to get YouTube to look at its Terms of Content, because so much of the footage it includes, like the infamous rabbit in the sink video, is extremely harmful and should not be included as entertainment. Our videos are the first step towards asking YouTube to look at what content it allows in terms of animal welfare.

In the meantime, our fantastic volunteer, Penny King, is using the RWAF YouTube account to comment on videos from other channels and point viewers to our website, so they can find reliable and up to date information, which is sadly lacking in a lot of content that is out there.

To find our channel, go to YouTube and search *Rabbit Welfare Association & Fund*.

Rabbit ownership survey

We recently posted a survey on social media to help us understand who rabbit owners are, and allow us to show politicians that rabbit welfare matters to significant proportion of voters. A huge thank you to everyone who responded.

The results of the survey should allow us to improve understanding of rabbit ownership amongst regulators, government, and businesses so that we can call on them to do more to improve standards for pet rabbits.

A massive thank you to Andrew O'Brien, another fantastic volunteer who has a vast amount of experience not only in working with charities but also with MPs. We are hugely grateful to Andrew for his time and expertise.

The results of the survey make interesting reading:

- 47.88% of owners were aged 36-55 years old; this was the largest age group
- Most people (50.05%) stated they spent between £20-50 per month on their rabbits
- 90.57% of respondents stated the current government does not pay enough attention to rabbit welfare
- 32.47% stated rabbit welfare issues were very important when influencing their voting behaviour, and 41.52% stated it was somewhat important.



1: Ian Paisley, Flopsy and Thumper



2: Baroness Findlay, Bob and Miriam



3: Lynda Holton, Oscar and Molly

Parliamentary rabbit photos

Another of Andrew's suggestions was to have a Parliamentary photo competition. To improve standards of rabbit welfare, we need to get the Government to take a more active stance on rabbit welfare issues. As a way of raising awareness and gathering supporters for our cause within Westminster, we asked MPs, lords, and their staff to submit photographs of their bunnies. This was a fun way to engage parliamentarians and at

the same time, better educate them on rabbit welfare. We were really pleased that the MP's engaged well with the competition. Our winners were as follows:

1. Ian Paisley
2. Baroness Finlay
3. Lynda Holton

Don't miss out on the Spring 2022 Rabbiting On!

Photo: C Eary

The Spring 2022 Rabbiting On will be published in February

Features will include:

- **Allowing rabbits to exhibit natural behaviours** – Dr Laura Dixon, explains why it is important that rabbits have access to dig, hide, forage, groom a companion, binky and chew.
- **Handling baby rabbits** – Rabbiting On Veterinary Adviser, Guen Bradbury, looks at when, how and why baby rabbits should be handled.
- **Triage situations** – Registered Veterinary Nurse, Rachel Sibbald, begins a new series for Rabbiting On, and examines how to triage emergency situations, starting with fractures.
- **What is your rabbit's sense of taste like?** – Veterinary Student, Tom Ingleton, continues our 'senses' series with what rabbits taste.

And much, much more...Don't miss out! Ensure that your subscription is up-to-date so you can receive the issue hot off the press in February 2022.

You must make sure that your address and details are up-to-date on our database, to ensure your copy of Rabbiting On is mailed out to the correct address. Unfortunately, we cannot send out replacement copies if you have failed to update your details.

- Features are subject to change without prior notice.

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Mabel and Me: Who is the glorified rodent?

A Mémoire of living cheek by whisker with house rabbits.

By C A Lewis

This is a mémoire of a period of my life blessed with house bunnies; it is not a manual on keeping rabbits, rather it is a multi-layered offering, allowing different readers different things to take away, be it humour, problem solving, bonding with a bunny, or help parenting a bunny.

Available as Paperback or Kindle from www.Amazon.co.uk

<https://smile.amazon.co.uk/Mabel-Me-glorified-Memoire-whisker/dp/B097X4R6LQ>

<https://www.facebook.com/Mabel-and-Me-Who-is-the-glorified-rodent-112534454409948>



Discharge from the eye is a cause for concern

RABBIT SENSES

- Sight

By Tom Ingleton, Veterinary Student

Over the next few issues, we will be going over each of the five main senses (sight, smell, sound, touch, and taste), going into a detailed summary of how rabbits interpretate the world in comparison to us; how the healthy anatomy should look and finally focusing on some common problems that vets see every day.

Vision - the good the bad and the colourful!

Being prey animals, rabbits are constantly on the look-out for predators, and as with most prey animals, their eyes are on the side of their heads. This enables them to be able to see much further around and above them. This gives rabbits a good general overview of their surroundings, and with only a few subtle head movements they can build up a complete picture of their environment.

This need to constantly be scanning for predators has resulted in a quantity over quality type of vision for rabbits - this well-developed peripheral vision results in only 10-20 degrees of 'binocular' vision (where the eyes work together to form a three-dimensional picture). After all, if they can see that a hawk is flying towards them, it doesn't matter that they can't see each feather clearly - they just need to run away!

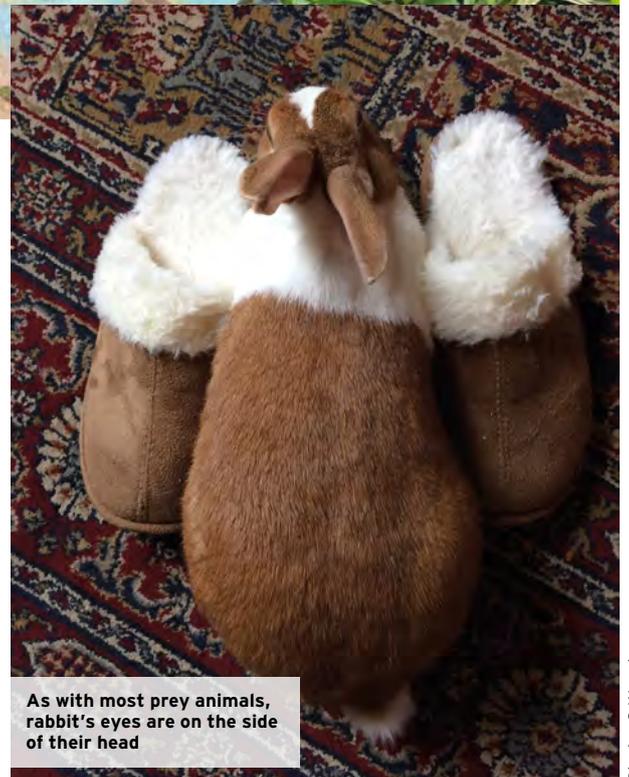
When you have eyes on the sides of your head, you also compromise by having a blind spot right in front of your nose. You might have noticed your rabbit turning or tilting their head to get a better look at you (or the treats you're holding!), this is to see around that blind-spot!

The photoreceptor cells (vital for vision) in the rabbit retina are mostly rods, which are very sensitive to movement and work best in low light, which makes them perfect for spotting predators at dawn/dusk, when rabbits are most active.

So, can rabbits see in the dark? Well... kind of! Rabbits still need some light hitting their rod cells to see, so they can't see in pitch black darkness. What they can see in low light is grainy and lacking detail, this is because rod cells don't pick up on the finer points. Cone cells do detect details, but they are only stimulated in bright light. To cut a long story short - their night-vision is a lot better than ours, but not perfect! The few cone cells that rabbits do have are sensitive to blue or green light, which suggests they have dichromatic vision when it comes to colour, seeing only in these two shades.

How often do you see your rabbits blink? I'm guessing very rarely since they only do so once every 5 to 6 minutes, humans blink up to 100 times more often! They also have a third eyelid (nictating membrane) that closes unconsciously to protect the eyeball.

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As with most prey animals, rabbit's eyes are on the side of their head

Healthy eyes

Becoming familiar with your rabbits' healthy eyes will help you to notice any problems before they become too serious! Check them regularly for any changes, provide a clean environment and plenty of roughage, and let them do most of the work - rabbits grooming themselves and each other will keep their faces clean and healthy! Rabbits often groom around their bonded companions' eyes - this is because every rabbit's eyesight is important for the safety of the group. Nature makes things that are essential for survival pleasurable!

You should be able to observe that your rabbit has bright, clear, and wide-open eyes, with little/no sclera (the whites of eyes) being visible. They should have equal-sized pupils, no discharge or redness and smooth skin over the eyelid and face.



Corneal ulcers can vary in severity

Common problems

This is a very brief overview, a whistle-stop tour of some common problems with rabbit eyes; this list isn't exhaustive and if you want to learn more about these conditions, I encourage you to do your own research - and of course, any questions or doubts and your vet is the person to ask! It is also important to remember that whilst I will talk about these conditions individually, things in medicine are very rarely isolated: they overlap; one can cause another, and they can be a sign of things going on elsewhere in the body.

There is, of course, a whole host of other problems that rabbits can get on, in and around their eyes. If in doubt - call your vet, and you can always check online for our RWAF Rabbit Friendly Vet List!

• Cataracts:

Cataracts looks like a milky, cloudy disk forming over the lens of the eye. It can be common in young rabbits (sometimes as the result of the parasite infection, *E. cuniculi*) but can also develop with age or as the result of a trauma or ruptured lens. Your vet will use the position of the cloudiness to help pinpoint when/why this cataract has occurred. There are potentially options for medication/surgery, which your vet can discuss with you. Rabbits can adapt well to losing their sight, when kept in a familiar environment that they can use other senses to navigate.

• Conjunctivitis:

Also known as pink eye, there will (unsurprisingly) be a pink-red colouration to the eyeball with a watery discharge. Conjunctivitis is often the result of another ophthalmic condition and for a full recovery this will need to be identified and treated. Conjunctivitis can also be caused directly by an irritant (poor bedding, ammonia etc.) or an allergy. Your vet will likely prescribe a course of topical antibiotics.

• Foreign objects:

Our rabbits are often going to be at risk of foreign objects in their eyes - if you explored everything with your face, you would be too! These objects include, but are obviously not limited to, straw, hay, dust, and dirt. If the offending particle is obviously visible and if you feel comfortable, then you can leave some boiled water to cool and use a cotton bud to gently remove it. However, if you have any doubt or the eye is inflamed, red and sticky, it's definitely best to leave it to a vet to check.

• Tear ducts problems:

The nasolacrimal duct in rabbits is a very common site of blockage (dacryocystitis), and this is often, surprisingly, linked to dental problems. If the constantly growing teeth of rabbits are not kept in line with a hay-based diet and some safe chews, then the tear duct can be pushed on by the overgrown roots, or blocked by an infection, often starting in the mouth.

This infection can be very painful, and since the tears can't drain normally through the nose they back up and



Rabbits explore with their face, making them more prone to foreign bodies

leak out through the eyes (epiphora - increased tears), irritating them and if left untreated, eventually damaging the surrounding skin.

• Corneal ulcers:

Corneal ulcers can vary in severity from only a few cells thick to multiple layers of tissue. Rabbits have very large corneas that are very well innervated, so any ulceration can be very painful. This can cause the rabbit to rub the eye and keep it closed, which only makes the ulcer worse! You can often recognise an ulcer by looking for inflammation and an area of cloudiness. Mild ulcers will heal in a few days, any extensive damage can be accessed at the vets with the use of a fluorescent dye.

What to remember

Check regularly!

Diet: plenty of hay/grass to keep those teeth under control. Let them do it themselves - as your rabbits groom each other, they'll keep their faces clear of any potential irritants.

Hygiene: keeping the area clean and dry will reduce bacteria.

Vaccinations: keeping these up-to-date helps prevent numerous health conditions - Myxomatosis, for example, often first presents as runny eyes.

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In the early stages, Myxomatosis presents as discharging eyes

Cold weather brings changes for all rabbits

HOUSERABBITS IN WINTER

By Belinda Francis of Galen's Garden

The biggest change in winter is for houserabbits, where the difference in temperature between the heated indoors and the weather outside increases hugely. Generally, the odd hop around outside in colder weather is okay, but any extended period outdoors should be avoided for rabbits who live in centrally heated houses.

For houserabbits used to regular outdoor exercise, prolonged periods of cold weather can lead to boredom and less fresh forage in the diet.

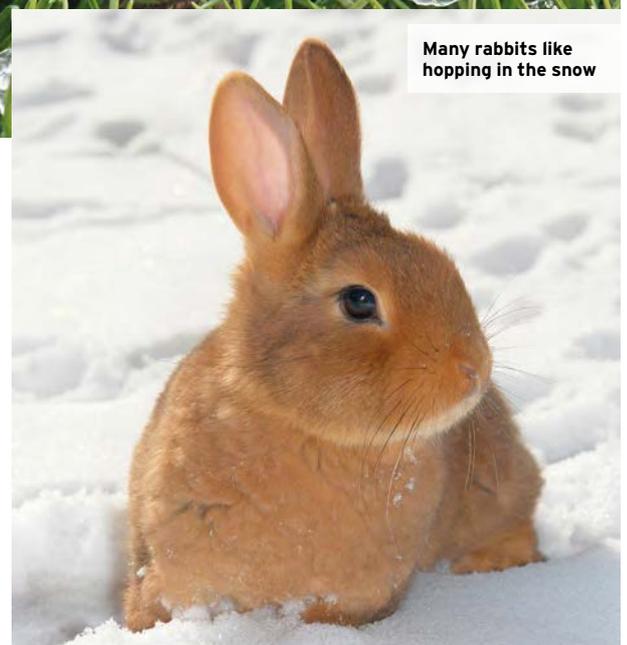
Boredom busting

Pretty much anything you provide indoors, to replace the benefits of being outside, is going to be potentially messy. Rabbits love digging and shredding things, which are not the kind of pastimes humans view as indoor activities!

A small pond liner makes a relatively inexpensive floor protector, and by lifting the edges the mess can be concentrated in a smaller area, to make cleaning up easier. It is also easy to fold away into a compact unit for storage when not in use.

The large fruit and vegetable boxes that supermarkets often leave out for shoppers to put their shopping in, or Amazon boxes, can be repurposed into disposable rummage boxes. Fill with soft straw or hay and sprinkle small amounts of your rabbit's food/forage in various places.

For a more robust digging box that can be half filled with soil or sand*, you might want to look for Faulks & Cox/Red Gorilla water or feed troughs



Many rabbits like hopping in the snow

Photo: Yay Images

Photo: Yay Images

for horses, which are made from recycled plastic. These are available in round or rectangular versions, with a capacity ranging from 40 litres - 95 litres and 22cm - 37cm deep.

If your budget allows, Rodipet makes a 100cm x 100cm x 50cm high wooden playpen which slots together and is easily expandable. Their 100cm x 100cm hemp mats are a good boredom breaker for rabbits which try to dig up the carpet out of boredom. Smaller hemp mats in the same range can be used in cardboard fruit and vegetable trays. These can be placed over the areas of carpet that the rabbit normally targets.

Manor Pet Housing sells a wooden digging box with replacement trays and wooden box steps, as well as wooden indoor enclosures, for a more permanent solution. Other products in their range can be used to create changes in your rabbit's indoor environment by moving them around on a regular basis.

DIY toys

If you are time-rich, there are some time-consuming but simple and inexpensive toys that you can make, if you don't mind your rabbit making a mess. Your rabbit should always be supervised when playing with homemade toys.

• Hay rope toy

Make a rope from long grass or hay and then tie the

Composting is slow in winter



Photo: Yay Images



rope into large knots, or an old-fashioned hay whisp, with a small treat inside each knot or braid.

- **Pass the Parcel**

Less technically challenging, is a pass-the-parcel. Unless you have them to hand, you will have to buy clean (unprinted) newspaper (the type used in traditional fish and chip shops) and some hemp or sisal string, and wrap some bits of your rabbit's food or forage in-between each layer.

- **Cardboard tube puzzle**

Similar to making cardboard pots for plants from toilet rolls, the inner cardboard tubes from kitchen rolls can be flattened in half, folded lengthways and have four evenly spaced cuts made in each end in line with the creases. The four flaps** can be folded over each other to conceal the inner contents using the same technique you would use to close a cardboard box. Seal one end by folding, fill the tube with hay and pellets or a treat, then seal the other end by folding.

- **Wooden string toys**

Beechwood rings, cotton reels, drilled cubes/blocks and wheels or discs are available from craft suppliers and can be strung with hemp or sisal string or cord. Knot the string or cord to hold the wooden elements in place. These throwing toys are good to place in digging boxes.

Thicker hemp or sisal rope can be split into thinner threads which wooden elements can be tied to. Simple clumps of hay (and/or herbs) or folded paper parcels containing pellets or treats can be tied into the split rope and the end knotted. Loofah adds texture to toys and treats can optionally be worked into the design.

- **Scratch box**

Similar to the design used in cat scratching posts.

Take a shallow or cut-down cardboard box which will form the base of a scratch tray. Cut scrap corrugated cardboard into strips, all the same length. Line them up (on their edge so the corrugations show at the top and bottom) in rows of 6-8 and tie those bundles one third of the way from each end. Then tie several of those bundles together to form a dense mat



the same size as a cardboard box (with the holes from the corrugation visible on top and underneath). Place a few treats at the bottom of the scratch tray container and then put the deep corrugated mat on top. Tie the mat into the box with hemp or sisal string.

What can you grow indoors or outdoors?

Cereal grasses, rye grass and cocksfoot grass, green vegetables as tray greens and legume greens such as fenugreek and alfalfa will grow indoors throughout the winter months, if they have sufficient daylight.

Wild plants are more sensitive to the length of day or number of daylight hours and are unlikely to grow successfully unless given artificial daylight lighting. That doesn't mean you can't plant them indoors in winter to give them a head-start in the spring, just label them properly so you know what is in the pots. Put the pots out as soon as the weather is warm enough and they should germinate fairly quickly.

Some plants need a winter period in order to germinate properly in the spring. You can replicate that by placing them on damp kitchen roll in a sealed bag or container and placing them in the fridge for several weeks before planting indoors. Alternatively, place a layer of damp sand on top of the soil, plant the seeds, cover with soil and leave outside throughout the winter.

Wild plants are normally sown in the late summer/autumn or in spring. If you missed the late summer/autumn window, then try both natural and artificial cold scarification and see what works best.

What can you do in the garden in winter?

Not much in terms of planting and harvesting, unless you have kale growing. Planning what to grow the following year is a good idea though, while most plants have died back and you can see the available space more clearly.

Composting is slow in winter, but it's still worth raking up the leaves into a pile to rot down as leaf mould. Chop up any waste vegetable material before adding them along with the rabbit waste to speed-up decomposition.

If you plan to grow vegetables in the summer, you can dig compost trenches 30cm - 60cm deep, or create raised beds, where the vegetables will be planted. Add your scrap paper, card, rabbit bedding and vegetable waste, including emptied teabags and coffee grounds. Cover with a layer of the dugout soil each time until the weather warms up. As soon as the weather warms up, this material will break down into valuable compost for your veggies.

Herbs and wild plants thrive in poorer soil, so you can recycle the depleted soil from pots or growbags that had tomatoes in the previous summer and use that to grow rabbit forage in the spring.

References

*Rabbit Digging Sand - <https://www.amazon.co.uk/Elmato-12080-Special-Burrowing-Rabbits-Rodents/dp/B06XT5YBB9>

** Folded Ends - https://upload.wikimedia.org/wikipedia/commons/3/34/Toilet_paper_seedlings_cup_2.jpg

Faulks & Cox / Red Gorilla containers - <https://redgorilla.red/equine-agriculture/containers/c112>

Tidee dustpans with long handles and large pan - <https://redgorilla.red/equine/tidee-range/c113>

Rodipet playpen - <https://www.rodipet.co.uk/cages-runs/rodistax-indoor-run-for-pets-starter-kit-100-x-100-x-50-cm.html>

Rodipet hemp mat - <https://www.rodipet.co.uk/bedding-sand/rodipet-100-x-100-cm-hemp-mat-for-run.html>

Hay wisp instructions halfway down the page - <https://www.proequinegrooms.com/index.php/tips/grooming/shine-like-crazy-wicked-shine>

Rabbit offspring, unlike puppies and kittens, do not need to be encouraged to urinate or defecate

GUIDE TO HANDREARING BABY RABBITS

By Nadene Stapleton, Veterinary Surgeon

The RWAf does not advocate the breeding of rabbits, whilst so many reside in rescue centres awaiting loving homes. The fact remains that there are too many rabbits and not enough homes, and breeding more rabbits further adds to this problem.

However, there are times when unexpected litters arrive, and these baby rabbits may need hand rearing, so it is important to know how to undertake this, to give the young the best chance of survival.

Do they need hand rearing?

Rabbits are born hairless, blind and deaf and remain in their nest for about three weeks before emerging fully furred and able to eat solid food.

Mother rabbits (does) are very good at hiding their offspring for the first three weeks to protect them; often hiding them under the ground in a shallow scrape. The baby rabbits are only fed once a day by their mother. This is very unlike dogs and cats, which nurse their young for long periods of the day. Rabbits, who need to avoid predators and need to constantly eat due to their fast metabolism, do not have this luxury. Instead, they ignore their young for almost 23.5 hours a day and feed them once only. Due to this unusual nursing pattern, it is not unusual for people to mistakenly believe the young have been neglected and need to be saved.

Rabbits are very unlike other species in regard to hand rearing. Most puppies and kittens who are hand reared survive - many baby rabbits do not. It is critical not to interfere and hand rear baby rabbits unless it is absolutely necessary, as your interference is more likely to doom the rabbits than save them if they do not need hand rearing.

When they are born their stomach pH means they are susceptible to infections of the gut. These infections are suppressed by an interaction between the baby rabbit and their mother's milk, which produces an antibiotic type substance called 'milk oil'. If baby rabbits are hand reared, this substance is not created and they are prone to getting infections.

If the mother rabbit has passed away, trying to find a surrogate mother is always preferable but this does not always work. You will need to rub the surrogate mother's scent on the orphans to try to get her to take them but monitor closely as sometimes they will injure or kill the babies. In such cases you have no choice but to attempt to hand rear, but try to seek assistance from someone who is experienced, as it will greatly increase the likelihood of the young surviving.

If the mother is still alive but with no milk take her and the litter to a vet for a check-up.

If the mother is alive and has milk check for mastitis (or seek veterinary advice); if no mastitis is evident, you may be able to try to hold the babies under her to encourage them to drink. If this is not successful, then hand rearing should be the last option.

If you find kits out of the nest, they probably got pulled out of the nest accidentally when mum left. Make sure you do not smell like a predator, wash your hands well then pat the mother before picking these babies up - warm them up and then place them back in the nest.

Environment

Try to emulate as natural an environment as you can. It should be warm (28 degrees), quiet and dark with very little disturbance apart from feeding time. Inside a warm beanie or a snug pouch is ideal. If the mother created a nest (often lined with their own fur) then you can continue to use the same nest. A heat mat, heat disc or hot water bottle can be used to maintain a constant temperature, but it is important that they are not too close to this or they will burn. It is better to have them in a warm room



Photo: N Stapleton

Feeding technique

- Make up your milk replacer and keep it warm. Keep a thermometer with the milk to test the temperature
- Weigh each baby before their first feed of the day
- Keep the baby warm while feeding - cold babies do not eat
- Be very gentle and don't put the rabbit on its back to feed - this is unnatural and increases the risk of aspiration pneumonia
- For the first feed, gently place a small amount of milk on the lips to encourage a licking response. Never force milk into the mouth
- If you are using a bottle and teat, remember to puncture a small air hole in the tip (they have no hole when first purchased). Don't make the hole too big, or you will drown the baby - too small and they will not get enough milk
- A second hole can be punctured at the side of the teat (a little higher up) to allow air to enter the bottle during suckling. The holes are best made using a large sewing needle heated over a flame but rinse the teat well afterwards so it doesn't taste of burnt rubber
- It may take a few attempts before the baby gets the hang of it so be patient!
- After feeding, record the amount fed
- Gently remove any milk from around the face using a soft clean cloth and place back into the warm nest.

Frequency of feeding

Although rabbits naturally only feed once a day, you will struggle to get them to take in enough at one meal. Some litters need feeding every hour just to survive initially. You should not have to feed overnight, and once a feeding pattern is established most feeds can be reduced to 1-3 times daily, depending on weight gain. The weights of the rabbits need to be used as a guide and meticulous records of weights and amounts of feed consumed at each feed are essential. Try to maintain a steady pattern of feeding times at regular intervals.

For the Wombaroo product, the following recommendations are given and can be used as a guide:

Weight (g)	Feed (mL/day)						
80	11	160	19	240	26	340	34
90	12	170	20	250	26	360	35
100	14	180	21	260	27	400	38
110	15	190	22	270	28	450	42
120	15	200	23	280	29	500	45
130	16	210	24	290	30	550	47
140	17	220	24	300	31	600	50
150	18	230	25	320	32	650	53

Caecotrophs and weaning

Weaning of baby rabbits usually takes place between 4-6 weeks of age, under natural circumstances. Solid food, including pellets suitable for young rabbits (not muesli), as well as good quality hay can be offered from 2-3 weeks. Water should be provided in a dripper bottle at the correct height or a shallow bowl. Rabbits should be fully weaned by 4-5 weeks. This can be done gradually by reducing the feeds offered while keeping a close eye on their weights and the amount of solids they are eating.

As mentioned before, under normal circumstances the pH of a baby rabbit's stomach is about 6 but an adult rabbit's stomach is very acidic (pH 1-2). Sometime around weaning, a complex series of events occurs where the stomach pH becomes acidic, making it more hostile to bacteria. These changes must occur, but not before the baby rabbits consume some of their mother's caecotrophs. Caecotrophs are then thought to provide the essential bacteria used to colonise a baby rabbit's caecum, which is the part of the gut behind the stomach. This bacterial colony

than on a heat source they cannot move away from. If discs or hot water bottles are used, they will need to be re-heated during the night. Some heat pads are only warm if they have a heavy weight on them and may not be appropriate for tiny, light baby rabbits.

Milk

The best hand rearing formula is Wombaroo Rabbit Milk Replacer or Beaphar rabbit milk replacer. Full cream goat's milk can be used in an emergency. Standard kitten milk replacers can be used, made up according to packet instructions, but rabbit milk is much higher in metabolisable energy and fats and much lower in protein. To overcome this deficiency, 1-4 part full cream can be added for every 10 parts kitten milk replacer, to increase the fat content (e.g. 1-4ml of cream for every 10ml of milk made up).

The milk should be made up fresh for each feed and fed at 35°C. Small feeding bottles and teats, pipettes and 1ml syringes can all be used, depending on preference. The most important thing is to stick with either a bottle or a syringe. Sucking reflexes are lost within 2 days, so trying to use a bottle after using a syringe may not be successful (although you can try). Probiotics meant for rabbits can be added to the syringe feeding formula, although this can be problematic (see later). One of the biggest risks with feeding is 'aspiration pneumonia' or breathing milk into the lungs. This is fatal and can be avoided by being very gentle and never having the baby rabbit on their back to feed. Rabbits of 2 weeks or older can be encouraged to lap milk from a small shallow container such as a lid. This will take a few attempts before they catch on, so frequent small meals of warm milk should be offered throughout the first day until they get the hang of it, then feeding 4 times daily should be fine.

Cleaning and toileting

It is also essential to maintain strict hygiene. Make sure containers and feeding equipment are sterilised between each feed (products suitable for human bottles are fine but rinse everything well). Rabbit offspring, unlike puppies and kittens, do not need to be encouraged to urinate or defecate - they can do this by themselves. It is wise to monitor for urine and faeces to make sure they are passing wastes normally.



Rabbits are difficult to hand rear, and it is unlikely all of them will make it, despite your best efforts

allows rabbits to digest grasses and solid foods. The timing for all this is tricky and there is no way to know exactly when this should happen when we are hand rearing.

If we provide caecotrophs too soon, we could cause a bacterial infection by introducing bacteria into the gut too early. Too late and the pH of the baby's stomach may have become too acidic for the bacteria to survive its passage to the caecum.

This is part of the reason why so many baby rabbits struggle at the time of weaning. Some people mix in a caecotroph from a healthy rabbit to the milk at the time of weaning (caecotrophs can be obtained if you place a soft buster collar on a healthy adult rabbit). Buster collars are stressful to rabbits and are usually not advised, but this is a special situation. We need to minimise stress to the donor rabbit from an ethical and welfare perspective and put the collar on for as short a time as possible, keeping the rabbit with their companion if possible, providing plenty of interesting food etc. in the environment to reduce stress as much as possible.

It is important to know the difference between normal rabbit faeces and caecotrophs. Normal rabbit faeces are not suitable.

If this is not possible to do, or as an additional precaution, a rabbit probiotic can be added to the milk at each feed, although these products usually only contain a sample of 4-6 types of bacteria from the hundreds that would normally be in a healthy rabbit's gut.

It is not unusual for baby rabbits to lose weight around the time of weaning. This should be monitored carefully.

Greens - when and how

No matter how good a job you do with hand rearing, the digestive function of a hand reared rabbit is going to be abnormal - although it will improve with time.

It is impossible for them to immediately establish a normal bacterial population in their gut as a parent reared baby rabbit would do - this will take them a lot longer (months). This means some restrictions need to be placed on what grass and green vegetables should be offered to hand reared babies to avoid gastrointestinal upsets - and in extreme cases diarrhoea and death.

I have had hand reared rabbits take a full 10 months before their digestive function was normal (producing abnormal pasty caecotrophs for several months before normal caecotrophs were produced) which I believe was due to the need to develop a population of normal bacteria in the gut over this period of time - although this is hard to prove.

Under no circumstances should you feed muesli, fruits or carrots - these foods are high in sugars and will promote the growth of bacteria which are detrimental to your rabbit. The glucose in these foods can be converted to toxins by some bacteria which can kill your rabbit - especially a hand reared rabbit which is likely to have a poor population of bacteria already.



Baby rabbits remain in the nest for about three weeks before emerging fully furred

First offer pellets (these are not essential in adult rabbits but are in babies to help with growth) and good quality hay - alfalfa, meadow or timothy hay (alfalfa hay is not advised in adult rabbits due to a high calcium content, but is fine for babies up until 5 months of age). After 2 weeks, greens can be offered. Choose one type fresh grass or weeds, which would emulate a more normal diet, and feed small amounts twice daily every day while monitoring for diarrhoea. If commercial greens are fed then choose something like chard, spinach, broccoli or kale; small amounts only.

If they tolerate that for a week then add in another new green in small quantities for the second week and gradually add in new items feeding the same thing several days in a row to avoid sudden diet changes etc. A little bit of pasty poo is not unusual - just make sure they remain lively and eating, but if liquid diarrhoea appears this can lead to rapid dehydration which can be fatal, so seek veterinary advice if this occurs.

Developmental stage	Age
Ears open	5 days
Eyes open	10-12 days
Fully furred	7-10 days
Eating solids	From 3 weeks
Fully weaned	6 weeks
Sexual maturity	4 months(Female) 5 months (Male)

Trouble shooting

Rattling when breathing or milk from the nostrils

- If you see milk from the nostrils during feeding or if breathing becomes laboured or noises occur when breathing, these are all possible signs of aspiration pneumonia - a rapidly fatal condition. This occurs when a small amount of milk enters the airway instead of the stomach. The rabbit should be taken to the vet for supportive care including antibiotics.

Won't feed - If you have a rabbit who will not accept the milk, then patience is key. Initially some members of the litter may need a little bit of encouragement by increasing the frequency of feeding, and just aiming to get smaller

amounts in. You may want to try the following:

- Check to make sure the milk is not too hot/cold
- Try a different shaped teat and check the size of the hole in the teat is large enough
- Make sure the baby is not too cold
- Make sure they are checked and deemed healthy by a vet
- Feed that orphan first and if they do not eat much offer them a second feed after feeding the others - sometimes they will eat better if given a second chance.

Not passing faeces - As mentioned, rabbit babies do not need to be stimulated to pass urine or faeces, but you can gently wipe the rectal area with a warm moist cotton ball to stimulate this if you are worried. A change in diet may cause problems so 24 hours of not passing faeces is worth keeping a close eye on. Most kits will urinate and defecate at the edges of the nest as an instinct to keep the area clean and dry, so check on the outskirts for wastes. If they are not passing poo for longer than 24 hours, then have them checked by a vet.

Ongoing weight loss - An orphan who has ongoing weight loss with or without a good appetite is of concern. If they have a good appetite, then increase the frequency of feeds until they gain weight. If they have a poor appetite or continue to lose weight, then get them checked by a vet.

Diarrhoea - This is a common problem and can rapidly lead to fatal dehydration. Offer warm water instead of milk every second feed to maintain hydration; if they are not accepting milk or water they need to be seen by a vet.

Bloat - This is a rapidly developing, painful condition characterised by sudden, extreme abdominal distention. It causes difficulty breathing and rapidly progresses to death. Immediate veterinary care is advised, although sadly many rabbits die before they can be helped. This occurs if the gut bacteria produce excessive quantities of gas, and foods high in sugars, such as fruit and carrots, or carbohydrates, such as muesli mix are often implicated and should be avoided, although the underlying cause is likely to be more complex than that.

The outcome may not be what you wanted

As difficult as it is to accept, don't expect all the litter to survive. Rabbits are a complex species to hand rear and it is unlikely all of them will make it despite your best efforts. Try to stay objective and identify which rabbits are struggling/weak/not eating/showing signs of ill health. Seek veterinary care early and don't let the rabbit suffer - putting it to sleep may be the kindest thing to do. Remember they would have had no chance at all if it wasn't for your hard work.



Wash your hands well then pat the mother before picking the babies up

PAW PRINTS

We'd love you to contribute to Rabbiting On, and how better than with photos of your own rabbits? We know there are some gorgeous bunnies out there, and we'd all love to see them. Please share your favourite photos with us, and we'll choose the best shots for our regular Paw Prints feature.

We also choose photos for Star Bunny (on the Contents page) and our It's My Bunny! Competition from your Paw Prints pictures - and there are prizes to win!

Pictures submitted to Paw Prints may also be chosen to illustrate features in Rabbiting On.



Benjamin

SARAH HODDER



Soda and Copper

JACQUELINE ENGLAND



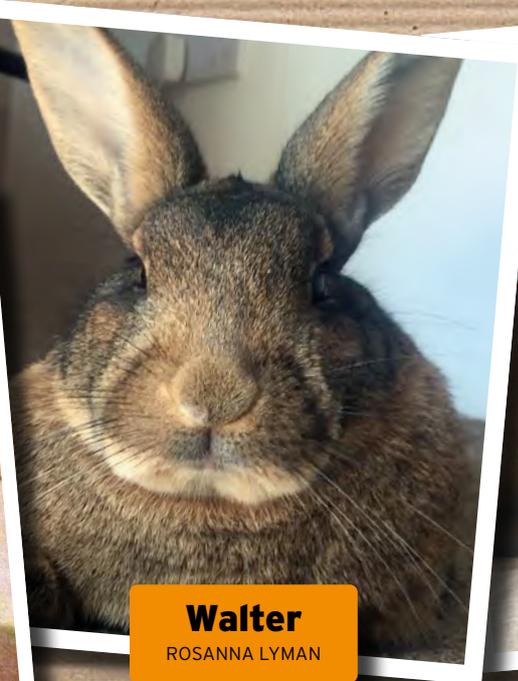
**Spring and Fitzwilliam
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Leo and Luna

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SALLY HIBBERT



Waffles and DP
KATHY GILLIBRAND

RULES FOR PHOTO SUBMISSIONS

We love to see your photos of your rabbits, and we're delighted to be able to feature them in Paw Prints, as well as It's My Bunny, and the Star bunny on the Contents page. Remember that one picture on Paw Prints wins a mystery prize. And we also choose our cover pictures from the photos you submit, so your bunny could even become a cover star! We also use photos in advice leaflets, on our website and on our Pinterest boards, so your rabbits could become Internet stars too! If you aren't familiar with Pinterest, you'll find our boards here, courtesy of one of our wonderful volunteers, Jo Hinde <http://www.pinterest.com/rwaf/> But unfortunately some readers send us photos that we are unable to use, because they're not high enough resolution for printing in the magazine, or the rabbit's or owner's name aren't supplied.

Please email your photos to: rwafphotos@gmail.com

Also, it's vital that your camera is set up properly before you take your photos, as it isn't possible to increase the resolution afterwards. We need you to set up your camera to the highest image quality. Any photos you submit should be about 1-1.5Mb (or more) if it's a jpeg or jpg file, and around 2.5 - 3Mb (or more) if it's a tiff (please compress tiff files before sending)

If you have difficulties, please contact hq@rabbitwelfare.co.uk or the helpline on **0191 933 9000**, and we'll do what we can to help.

You can also send print photos or photo CDs to: **Rabbiting On Photos, RWAf, Enigma House, Culmhead Business Park, Taunton, Somerset, TA3 7DY.**

We're looking forward to seeing lots more lovely bunnies!

CAN WE HELP?

Contacting the RWF

- Members can ring the **RWAF telephone helpline: 0191 933 9000**, for general rabbit advice, help with locating a rabbit friendly vet, finding the nearest rescue centre and bereavement support.
- Log on to the website at www.rabbitwelfare.co.uk for advice and articles on many rabbit related topics.
- To contact the RWF by post please write to:
RWAF, Enigma House, Culmhead Business Park, Taunton, Somerset TA3 7DY
Please include an SAE if you would like a reply.
- To contact the RWF by e-mail, please send e-mails to:
info@rabbitwelfare.co.uk

RWAF departments

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If you are looking for someone to board your rabbit while you are away from home, or offer this service yourself, please call the RWAF telephone helpline 0191 933 9000 or email info@rabbitwelfare.co.uk

ON THE HOP

The quickest way to process bulk orders of On The Hop may be found online at shop.rabbitwelfare.co.uk in the 'Books and Leaflets' category. Alternatively, call our helpline 0191 933 9000 or email info@rabbitwelfare.co.uk

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Rabbiting On

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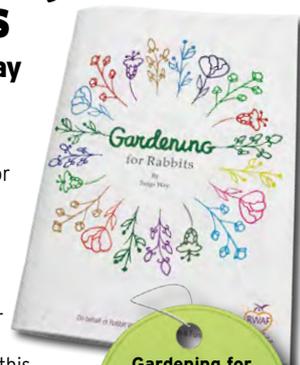


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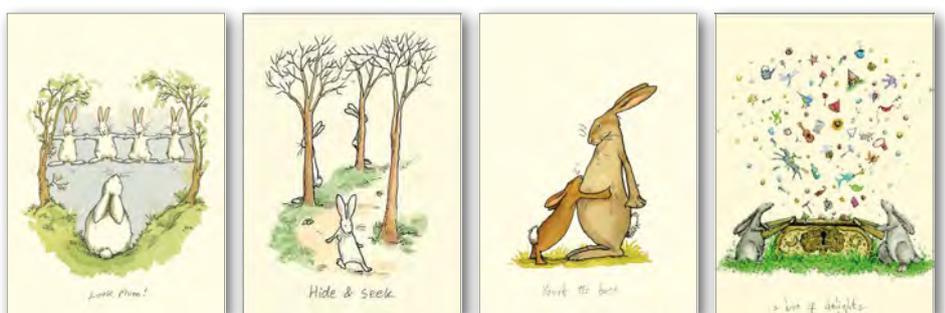
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