



2020

# Liberty Wildlife Rabbit & Squirrel Care Protocol

This protocol is to be used as reference for trained volunteers  
and should not be used as a replacement



Authorized by Allison Reeder, DVM

## New Arrivals

- **Start a care sheet.** For bunnies, create identification with 1-2 nail polish dots on their upper ears with a matching set on their corresponding care sheet. This nail polish will eventually wear off as new skin grows and doesn't need to be removed before released. Removal with nail polish remover may be irritating.
- **Check for the dehydration** level with a "tent test," or skin turgor test. If dehydrated, administer fluids before feeding.
  - Rehydration and digestion are mutually exclusive processes. If an animal comes in appearing weak, lethargic, or dehydrated, you must hydrate before feeding. As the animal rehydrates, it will become more responsive and alert, which is a more appropriate time to offer food or tube feed.
- **Stimulate the genital/anal region** if under 60g to help it eliminate. It's unknown how long it's been away from its mother and may need to eliminate urgently.
- **Place animal in appropriate enclosure.**
  - Bunnies/squirrels under 50g placed in the brooder in its basket. Bunnies/squirrels over 50g placed in aquarium or cage. Jackrabbits of any weight can be placed in aquarium.
  - Mark the enclosure with colored masking tape if meds are assigned, to create an easy glance reference for meds needed.

## AM Care

- **Weigh and record** each bunny and hand-fed squirrels every day, as they grow quickly. Weights should be taken before feeding/fluids on a solid surface to ensure most accurate weight.
- **Ensure the animal is warm** before administering fluids, meds, or formula. Ensure fluids and formula are warm using the water bath at 40 C.
- **Feed milk-replacement as early in shift as possible.** *For Rabbits*, milk replacement is to be made in batches of a dry mix of 1 c. Ultraboost + 1 c. 32/40 Fox Valley Formula. *For Squirrels*, milk replacement is only 32/40 Fox Valley Formula. Just prior to feeding, both the dry batches will be reconstituted with water at 1:2 ratio, disposing after 12 hours. Ensure formula is warm and there are no air bubbles from the mixing. For bunnies, *tube-feed* roughly 12% of body weight each feeding BID. For squirrels, *hand-feed* roughly 5% of body weight each feeding BID-QID.
  - For neonate squirrels, begin with QID feedings, offering food at the beginning and end of every shift. As their eyes open, decrease feedings to TID. As they become more older, feedings can be decreased to BID, then SID.
  - When done properly, tube feeding decreases risk of aspiration and handling time compared to hand-feeding. Risks of tube feeding include soft palette punctures, esophageal punctures, or inserting the tube into the lungs instead of the stomach. Do not advance tube if bunny is crying, as this increases the probability of inserting tube into lungs.
  - Before insertion, lay the tube against the bunny's body and **mark where the stomach should be** (roughly at the last rib) on the tube. In doing so, it's easier to

ensure the tube is far enough in when inserting. Check the stomach for bloat or fullness from previous feeding. If bloated, start by decreasing feeding amount to 6% of body weight, monitoring fullness of abdomen.

- Use a 3.5 tube attached to a syringe with the heated milk replacement mixture. Monitor the bunny's abdomen continuously, ensuring the bunny is not getting overfed, which may cause bloat.
- **Offer solid food and water as appropriate.** *Rabbits* will get timothy/alfalfa hay, native greens, pellets, and, if still nursing, milk in a bowl. For rabbits between 40-50g in berry basket, offer hay by lining the berry basket with small amounts. *Squirrels and most rodents* will get timothy/alfalfa hay, native greens, rodent block, and a small amount of seeds/nuts.
- **Administer SQ fluids** (LRS or Normasol), roughly 5-10% of bodyweight SID-BID. Reference weight chart.
- **Stimulate the genital/anal area** gently with a warm, wet cotton ball. This simulates what the mother would do to help the animals eliminate, as they can't do this on their own yet. Rabbits and squirrels with unopened eyes need stimulation at least twice a day. Some rabbits may need stimulation up to 60g. Failure to do this can cause uremic poisoning or bloat. Monitor for diarrhea, noting if it lasts 24 hours.
- **Administer medications** as needed, having another person double-check meds and dosing prior to administration. Assistance from med services may be required. Both SID and BID medications are administered in the AM.
- **Clean enclosures everyday**, removing any soiled bedding. The older bunnies may begin to produce cecotropes. If so, they will produce them first thing in the morning and eat them quickly, so preemptively removing cecotropes isn't a concern.
- **Clean materials and take out garbage** at the end of every shift. This includes soaking feeding tubes, syringes, and nipples in chlorhexidine solution for 15 minutes and rinsing with water. Change chlorhexidine solution once a month or when organic matter is present.

### PM Care

- **Ensure the animal is warm** before administering fluids, meds, or formula. Ensure fluids and formula are warm using a crockpot of water.
- **Tube feed milk replacement mixture.** Formula should be warm to the touch.
- **Stimulate the genital/anal area** with a warm, wet cotton ball or gauze.
- **Administer medications as needed**, having another person double check meds and dosing. BID meds only are administered in the PM.
- **Spot check** enclosures, ensuring animals have clean water.
- **Clean materials and take out garbage** at end of every shift.

### Reducing Stress

Rabbits and squirrels are prey animals and stress can be crucial to their survival in captivity. This stress can kill them and it may be caused by something seemingly insignificant. In particular,

rabbits in stress will breathe quickly, kick with back legs to get away, and lastly, stop moving. This freezing behavior indicates high level of stress and discomfort, though commonly mistaken for calming down. Ways to reduce stress include;

- Limiting handling time. Act confidently when handling, as they will pick up on handler's stress.
  - Never pick a rabbit up by ears or scruff. When handling, be sure to support the hindquarters in addition to the abdomen. Rabbits will kick their back legs when stressed in an attempt to flee and may break their backs, when unsupported.
- Limit noise in the room. Minimize talking and limit music to earphones.
- Hiding boxes and coverings over aquariums.
- Do not house near predators or noisy animals.
- Develop and maintain a schedule.

## **Release**

All animals must be self-feeding, gaining weight, demonstrating fearfulness/shyness towards humans, and cleared of any medical issues prior to release. Bunnies are to be released at >120g around dusk or dawn. Squirrels are to be released around 9 weeks old. Jack rabbits to be released around 7 weeks old.

Pictures/videos are allowed to be taken, but are not allowed to be shared on social media. If you believe you have good footage, please email them to Laura at [LauraH@libertywildlife.org](mailto:LauraH@libertywildlife.org). Releases should also be done around a suitable habitat with a water source.

## **What If...**

- What if the bunny has bloat?
  - Start the rabbit on 70 mg/mL strength Simethacone 0.001mL/g orally BID-TID x3 days. If the bloat is significant, med services can concurrently prescribe Metoclopramide 0.4 mg/kg orally BID-TID x3 days.
- What if the bunny has diarrhea over 24 hours or is not gaining weight for 3 or more days?
  - Bring to med services for humane euthanasia.
- What if there are wounds not previously recorded on the intake evaluation?
  - Bring to med services, clean wound, and start round of antibiotics. Separate from other animals.
- What if the animal is not fearful/shy of humans?
  - Strictly limit handling, only doing so when absolutely necessary. Do not talk to or unnecessarily touch the animal. Provide coverage over enclosure to limit animal's view of people. Animals may need to be moved to outdoor enclosure prior to release to further limit handling and increase shyness.

## Cottontail Life History

Cottontail rabbits are crepuscular/nocturnal. Rabbit kits are born in litters of two to six, at least twice a year. Kits are born without fur, eyes & ears closed (altricial). They are reared in abandoned nests/burrows of other animals, in which the mother visits only twice a day to avoid drawing attention to the baby rabbits. After two to three weeks, the kits leave the nest. At 80 days old, they can breed. They may grow up to two pounds and may live up to two years. (Sonoran desert museum)

Their large ears are used to regulate body temperature. When their white cottontail is raised, it is a warning signal to other cottontails to flee. A male's home range can up to fifteen acres while a females will be roughly one acre. (Desert USA)

**Natural Diet: Grasses, mesquite leaves, and cacti for water, as they rarely drink. They eat their own pellets (cecotropes) to maximize nutrient absorption (coprophagic). This is crucial to their gut flora. (Desert USA)**

Habitat: Shrubs, burrows, and thickets in deserts and grasslands throughout the southwest. (Desert USA)

### Cottontail Development

Age (days)	Weight (g)	Description
1 - 3	16 - 23	Neonate. Eyes/ears closed, ears are close to head, smooth skin. Color pigmentation of fur visible, pink abdomen.
4 - 7	22 - 35	Eyes/ears closed, ears are close to the head.
7 - 10	35 - 40	Eyes/ears beginning to open.
10 - 12	40 - 55	Eyes/ears continue to open, ears beginning to unfold. May begin to nibble solid foods.
12 - 14	55 - 70	Eyes/ears fully open. May be some self-elimination, but still needs stimulation.
14 - 18	70 - 80	Fur is filled out, rabbit is alert. Weaning process begins.
18 - 22	80+	Weaning should be complete around 80-90 g. Increased alertness, ears erect and listening. Should begin to shy of human handling.
22 +	120 +	Increased shyness of human handling. Should be ready for release, barring medical conditions.

## Squirrel Life History

There are three types of squirrels found most commonly in Arizona; Harris antelope squirrel, round-tailed squirrel, and rock squirrel. These squirrels are diurnal and the round-tailed squirrel and rock squirrel become inactive in the winter. They are colonial animals, though rock squirrels can live in solitary. (Sonoran Desert Museum)

**Natural Diet: Harris antelope squirrels prefer to eat fruits of the prickly pear and barrel cacti, seeds, mesquite beans, and insects. Round-tailed squirrels eat vegetation such as wildflowers, cactus flowers, mesquite leaves, grasses, and seeds. Rock squirrels eat seeds, mesquite beans, insects, eggs, and fruits of the barrel cacti and prickly pear cacti. (Sonoran Desert Museum)**

Habitat: Harris antelope squirrels prefer burrows in rocky habitats. Round-tailed squirrels prefer burrows in open flats with soft soil for their extensive tunneling systems. Rock squirrels have the greatest range, preferring burrow in rocky habitats anywhere except the driest areas of the Sonoran Desert. (Sonoran Desert Museum)

### Squirrel Development (combination of various species)

Age (weeks)	Description
<2	Neonate. Eyes/ears closed, smooth skin. Crawling ability depends on species.
> 2	Eyes/ears still closed. Fur pigmentation beginning to develop. Lower incisors erupt for ground squirrels.
3	Eyes/ears beginning to open. Fur continue to develops.
4	Eyes/ears open. Begins to nibble solid foods. Mobility continues to improve. Lower incisors for Harris antelope squirrels. Upper incisors erupt for ground squirrels.
5	Weaning begins, pellets may be darker in color. Mobility continues to improve.
6	Weaning continues, eating solid foods and formula.
7+	Weaning should be complete. Pellets are now solid and dark. Ready for release once completely weaned, self-feeding for 7+ days, and gaining weight.