

Rehab Easy Reference Sheet

Keeping Invertebrate Live Food for Feeding Wildlife (continued)

Mealworms

Mealworms are a common source of food for wildlife in care and are readily available from various suppliers. In Australia, the mealworms that are readily available include:-

Regular or Super Mealworms – *Tenebrio Molitor*

- Commonly available at pet shops and suppliers in various tub sizes and in bulk directly through suppliers.
- Good for small species.
- Are chill-tolerant so can be refrigerated for short periods to prolong shelf-life (however refer to notes below).
- Have a shorter lifespan than Giant Mealworms so will pupate much more quickly and tend to pupate all at once.
- Regular mealworms are available in small sizes (suitable for tiny animals).
- Some Wildcare Coordinators don't recommend using Super Mealworms as there is some indication that they are chemically enhanced to create a larger product and/or one that does not pupate as quickly as the Regular variety.

Giant Mealworms – *Zophobas Morio*

- Available through some suppliers in various tub sizes and in bulk directly through suppliers.
- Being a tropical species, they should not be refrigerated at all.
- Have a longer lifespan than Regular mealworms and therefore a longer shelf-life.
- Available in various sizes including small, medium and fully-grown.
- Are a hardier species and less prone to mite infestations.
- More expensive than Regular mealworms but believed to be more nutritionally balanced due to the ability to gut-load them more effectively due to their size.
- Suitable only for larger species of wildlife.

Mealworms can bite and cause harm (and even death to an incapacitated animal). Please check with your appropriate Wildcare Species Coordinator as to the most appropriate variety and size of mealworm to purchase for your animal.

Caring for mealworms:

- Small quantities of mealworms are packaged in plastic containers and often stored by pet shops in the refrigerator to prolong their shelf life. Once purchased, it is important that you don't continue to store them in the refrigerator as this can lead to mould forming in the substrate.
- When purchasing mealworms, if there is evidence of mould in the container, do not use it – return it for a refund or replacement.
- Bulk lots of mealworms usually come in a calico bag with bran and newspaper. Remove the newspaper before placing into a large plastic container. Hungry mealworms will eat the newspaper which has no nutritional value.
- Store mealworms in a plastic container with smooth sides so that they cannot climb out. If using a lid, ensure that the container is well ventilated.
- The container should be filled to 3-4cm with a suitable substrate, which will act as a food source for the mealworms. Suitable substrates include:-
 - Wheat bran or pollard (98.5% by volume) and Calcium Carbonate Powder (Balanced Cal®) (1.5% by volume);
 - Wheat bran or pollard (50% by volume) and Passwell Insect Booster (50% by volume).

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Mealworms (continued)

- Always provide small pieces of fresh vegetables as an additional food source (e.g. fresh carrot, potato, cabbage, lettuce, pumpkin, sweet potato). The vegetables also provide mealworms with a source of water. Ensure that the vegetables are replaced every 1-2 days to prevent mould forming.
- Vegetables should be placed on a shallow plastic lid/dish (not directly into the substrate) to prevent mould forming.
- Keep the container at room temperature.
- Check the substrate regularly and replace once it begins to look grainy (this is mealworm excrement), if it gets mouldy or if it smells.
- Mealworms can become infested with a form of mite. This can be identified as 'fine dust' on the sides of the container. They are generally harmless but they can multiply quickly and become difficult to get rid of. Mites are attracted to moisture and can be already on the mealworms at the time of purchase.

Wood Cockroaches

Wood cockroaches ("woodies") can be purchased in a variety of sizes. The size of your animal will dictate the size of cockroach required. Sizes available include Small, Medium and Large.

Care Notes:

- Small quantities of wood cockroaches are packaged in clear plastic take-away type containers. When purchasing from a pet shop always check the container carefully (without opening it!) to make sure that the insects are alive and that the container does not smell. Do not purchase if you can see a number of dead cockroaches or if there is a bad odour.
- Bulk lots of wood cockroaches usually come in a calico bag with egg cartons.
- Store wood cockroaches in a deep, plastic storage tub with a well ventilated mesh lid. Good ventilation is imperative to prolong their life.
- Wood cockroaches are excellent escape artists and can easily climb smooth surfaces. To prevent escape, paint a 2-inch strip along the inside top of the container of a suitable product to deter them from climbing out. Suitable products include Vaseline® (although this can be messy) or Fluon® (white, water-based product available through commercial breeders and pet shops).
- No substrate is required in the plastic tub but ensure that there are adequate places for the wood cockroaches to hide (egg cartons, empty toilet or paper-towel rolls are ideal).
- The container should be kept in a dry location where normal light cycle can be maintained (e.g. around 8 hours of darkness each day).
- To feed (gut load) wood cockroaches, provide a variety of food sources including dry foods (e.g. dry dog food or Passwell Insect Booster®) as well as several small pieces of fresh fruit or vegetables (e.g. carrot, pumpkin, apple, orange). If providing fresh vegetables, there should be no requirement to provide a water source.
- Ensure that the fresh vegetables are replaced every 1-2 days to prevent mould forming and to ensure that they continue to provide a source of water.
- When you are ready to feed to your animal, shake some of the wood cockroaches into a tall container with a small amount of an appropriate calcium/multivitamin powder (suitable for the animal you are feeding) to dust the cockroaches.

Check with your appropriate Wildcare Species Coordinator as to the most appropriate powder supplements for your species.

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Crickets

Crickets can be purchased in a variety of sizes. The size of your animal will dictate the size of cricket required. Small animals need small crickets, and large animals need larger crickets. Sizes available include Pinhead, Small, Medium and Large.

Some suppliers also offer frozen crickets (see section below on Frozen Foods).

Crickets have a relatively short lifespan (up to about 8 weeks) with a fully grown adult (large) cricket only living 2-3 weeks.

Care Notes:

- Small quantities of crickets are packaged in clear plastic take-away type containers. When purchasing from a pet shop always check the container carefully (without opening it!) to make sure that the crickets are alive and that the container does not smell. Do not purchase if you can see a number of dead crickets or if there is a bad odour.
- Bulk lots of crickets usually come in a calico bag with egg cartons.
- Store crickets in a deep, plastic storage tub with a well ventilated mesh lid. Good ventilation is imperative to prolong their life.
- Make sure that the container is large enough to avoid overcrowding which can lead to cannibalization.
- No substrate is required in the plastic tub but ensure that there are adequate places for the crickets to hide (egg cartons, empty toilet or paper-towel rolls are ideal).
- The container should be kept in a dry location where normal light cycle can be maintained (e.g. around 8 hours of darkness each day). Ideal temperature should be 18°C - 25°C. Crickets die quickly in lower temperatures.
- To feed (gut load) crickets, provide a variety of food sources including dry foods (e.g. oats, bran, grain, dry dog food or Passwell Insect Booster®, Wombaroo Reptile Supplement®) as well as several small pieces of fresh fruit or vegetables (e.g. carrot, pumpkin, apple, orange). If providing fresh vegetables, there should be no requirement to provide a water source.
- Ensure that the fresh vegetables are replaced every 1-2 days to prevent them going mouldy and to ensure that they continue to provide a source of water.
- You can use a sponge that is soaked in water and placed into a shallow dish to provide a water source. This is often a safer option for small hatchlings/pinhead crickets. Make sure that you check and replace the sponge regularly to prevent mould forming.
- When you are ready to feed the crickets to your animal, shake some of the crickets into a tall container with a small amount of an appropriate calcium/multivitamin powder (suitable for the animal you are feeding) to dust the crickets.

Check with your appropriate Wildcare Species Coordinator as to the most appropriate powder supplements for your species.

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Garden Snails

Snails can be purchased from some suppliers and generally come in a tub of around 10 snails. Snails are a good food source for reptile species such as skinks.

Care Notes:

- Garden snails come packed in plastic tubs.
- Commercially available snails are packaged in plastic containers and often stored by pet shops in the refrigerator to prolong their shelf life. Once purchased, it is important not to store them in the refrigerator as the concentrated waste in the container will cause their nutritional value to be reduced significantly.
- Once purchased, transfer them to a plastic container with a secured lid with ventilation holes. A lid is essential; remember snails can climb vertical, smooth surfaces.
- Providing cuttlefish bone will provide a calcium source.
- Snails prefer a humidity level of around 80% and will require daily misting. If snails are retracting into their shell, they are becoming dehydrated.
- The container should be kept between 22°C- 26°C (maximum) to prevent them shutting down.
- Suitable substrate for the container would include peat/coir moss or sphagnum moss making sure that it is not contaminated with any additives/soil enrichers or wetting agents. Do not use potting mix. Ensure the base of the enclosure is well covered to a depth of 10-15cm. Do not use garden soil as a substrate unless you are 100% certain that it is not contaminated with pesticides/garden fertilizer or animal faeces.
- To feed (gut load) snails, provide large chunks of vegetables such as carrots, sweet potato, apple and leafy vegetables. Brown rice can also be fed.
- If using snails to feed reptiles, avoid feeding snails leafy vegetables high in oxalates (e.g. silverbeet and spinach).
- Do not allow the vegetables to get too soft as this will attract small fruit flies which will lay their eggs in the vegetable matter. These can then become parasitic to the snail and eat it. This is more common in the warmer weather, but can occur at any time of year.

If collecting garden snails from the wild, be aware that they can carry parasites and worms which can be passed onto your animal. If you do feed wild garden snails, you should store them as outlined above and purge them for at least 7 days by feeding only carrot.

Fly Pupae

Fly pupae are available in active (live) or deactivated (frozen) forms. Refer to the section below on Frozen Foods for information on the frozen form.

Fly pupae are used as a source of protein for birds, reptiles and mammals.

Care Notes:

- Live pupae can be kept in the fridge for a maximum of 2 weeks at about 6°C, until they are needed.
- To hatch the pupae, place a small quantity inside a small tub at room temperature. The pupae should start to emerge within 4-5 days.
- From a more practical perspective (to prevent your house being inundated with flies!), take a small bottle with a lid and drill tiny 1-2ml holes in it. Place some larvae in it with a sprinkle of sugar in it. Place the bottle directly into the animal enclosure where the larvae will hatch and escape directly into a secure enclosure.

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Frozen Foods

A variety of 'frozen feeder' products are available from some suppliers as outlined below. Frozen foods are often a handy source of food to keep on hand to feed to reptiles, birds and some mammals.

Frozen Rodents (rats, mice), Birds (quail, chickens) and Rabbits

- If purchased from a reputable breeder with a good turnover, frozen feeders can be kept in the freezer for up to 6 months.
- Defrost only the item(s) that you require for one feed.
- Feeders should be defrosted to body temperature prior to feeding.
- Defrost by placing the item into a zip lock bag and placing it into gentle warm water until it is thawed and at body temperature.
- If the food is not eaten, it will need to be discarded. Do not re-freeze or refrigerate and offer again.

Frozen Crickets and Mealworms

- Some suppliers offer frozen crickets and Giant Mealworms which are frequently used by bird carers to feed small insectivores.
- It is recommended to defrost only the quantity required by placing them in warm water with a small amount of added Vetafarm Spark® or Soluvet®. The addition of the Spark or Soluvet aids in the rehydration of small birds.

Frozen Fly Pupae and Maggots

- Fly pupae are available in deactivated (frozen) forms and is also available in an active (live) form (see section above on Fly Pupae). It provides a good source of protein for birds, reptiles and mammals.
- Frozen maggots provide a good source of nutrition for very small insectivore bird species such as fairy wren chicks.
- Both pupae and maggots can be defrosted and added to other food mixes to provide additional nutrition.
- Frozen pupae and maggots be kept in the freezer for up to 6 months or thawed and kept in the fridge for 2 weeks.