



# All Creatures Animal Hospital

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## **Chameleons As Pets**

**Average Lifespan: 10-15 years**

### **Diet**

- Crickets should be fed every other day to your chameleon. \*
- Meal worms should be available at all times in a dish. \*
- \*Refer to pages 2-3 for complete invertebrate consumption information.
- Calcium supplements can be given twice a week on food.

### **Grooming/Bathing**

- Chameleons do regularly shed but require high humidity to do so. Misting of the enclosure is necessary to aid in shedding.

### **Housing Recommendations**

- Chameleons need tall, mesh enclosures, with lots of branches to climb on
- A UV light must be available for 10-12 hours a day.
- A heat lamp must be provided only during the day as basking area that stays approximately 95-100°F. Avoid heat rocks as these can cause burns.
- Water must come from a dripping source or your chameleon will not drink.
- The enclosure must be kept misted at least twice daily.

### **Annual Exam Recommendations**

- This time spent with our exotic veterinarian allows us to form a preventative plan for your pet. We can analyze your current husbandry and make suggestions.
- Fecal examinations check for internal parasites.
- Physical examinations by our veterinarian are needed to assess your reptile's health and check for any mites.

### **Senior Screening**

- Blood work may be required to check your older chameleon's kidney function, as a common cause of death in chameleons is renal failure caused by dehydration.

### **Common Medical Conditions**

- Metabolic bone disease from a lack of UV light causes lethargy and limb deformation because calcium is not being absorbed by your reptile.
- Hypervitaminosis (excess vitamin A) may lead to metabolic bone disease due to interfering with the absorption of calcium in your chameleon's body.
- Internal parasites can occur causing loss of appetite and/or rectal prolapse.
- Females can become egg bound if their calcium levels drop too low causing lethargy, loss of appetite, labored breathing and/or rectal prolapse.
- Renal failure is common in chameleons from chronic dehydration due to the strict housing needs that need to be met for you chameleon to drink.
- Respiratory problems can occur from infection, malnutrition, or improper housing, causing eye or nasal discharge and loud/labored breathing.
- Sneezing is a normal behavior in your chameleon to excrete salt.



## **How to Prepare Your Invertebrate Feeder for Invertebrate Food Consumption**

<b><u>Insect</u></b>	<b><u>Insect is Known For</u></b>	<b><u>Human Food Comparison</u></b>	<b><u>Staple or Treat?</u></b>
<b>Domestic Cricket</b>	Low Protein, High Fat (22.8%)	French Fries	Treat (Unless gut is loaded)
<b>Roaches</b>	Lean Protein with Variable Fat (14-50%)	Steak/Hamburger	Staple
<b>Silkworms</b>	Some Vitamin A, Lean Protein Source	Turkey	Staple
<b>Earthworms</b>	Protein, Good Micronutrient Content	Big Mac + Multivitamin	Staple
<b>Phoenix Worms</b>	High Calcium Content	Tums Tablet	Staple – Macerate Prior to Feeding
<b>Butterworms</b>	High ME and Fat Content (29% DM)	2 Hotcakes with Sausage	Treat – Recovery Diet
<b>Mealworm Larvae</b>	Fat (31%)	2 McDouble Hamburgers	Treat
<b>Superworm Larvae</b>	Fat (40.8%)	2 Sausage, Egg, and Cheese Biscuits	Treat
<b>Waxworm Larvae</b>	More Fat (51.4%)	Butter (53% Fat)	Treat
<b>Freeze-Dried/Canned</b>	Variable Moisture, High Fat	Doritos, Slim Jim	Treat – Use Sparingly

Note - Altering the insect's internal nutritive quality is a more reliable way to improve the prey's nutritional content. Gut-loading refers to act of providing invertebrate prey with a nutrient (e.g., calcium) dense diet for a specific time interval before the prey is fed to the intended insectivore. Several studies have shown a linear correlation between the intestinal contents of certain invertebrate prey and the feeding substrate provided (Bilby, 1971; Allen, 1989; Hunt, 2001; Anderson, 2000; Finke, 2003; Finke, 2004; Klasing, 2001). If the prey item is not ingested in a timely manner, the ingesta will pass from the insect and reduce the effectiveness of this supplementation method.

### **The Set Up for Crickets, Mealworms, and Roaches.**

Crickets and mealworm and superworm larvae can be housed temporarily in small plastic containers. It is important to provide them with water and a preferred gut-loading diet at least 24 hours prior to feeding the prey to herptile species. Hydration gels and water soaked

cotton balls can be provided to offer water. Alternatively, a potato slice or apple slice can be offered for hydration. Wheat bran-based larval substrates are often used as base-diets for crickets, mealworm, and superworm larvae. Commercial high calcium cricket feeds work well for crickets, mealworms and superworms. Avian starter diets and seed mashes can be used as well. Crickets should be afforded small trays of with ample amounts of feed. If starved, crickets will resort to cannibalism. Three parts substrate to one part insect density is generally adequate. For either substrate base, ensure that it contains at least 9% calcium. Levels exceeding 40.7% calcium have been associated with dietary avoidance in crickets (Zwart, 1979).

Transport containers for roaches are often inappropriate for holding and feeding. Depending on the species of feeder roach, a plastic or glass tank with a secured top to prevent escape may be needed. Roaches can be housed on newspapers, absorptive pads, or paper-towels with vertically placed egg crates to optimize surface area for crawling and hiding. Water may be offered via soaked cotton balls, apple slices, potato slices, hydration gels, or as fresh dark leafy greens. The staple diet of the roach should reflect a high plain of nutrition you want to achieve in the invertebrate. Thankfully, roaches accept and ingest a variable assortment of foods. The author (LL) offers her *Blaptica dubia* collection dark leafy greens, nutritional yeast, whole grain bread and cereals mixed with a % 750 mg tablet of ground fruity Tums, fruits, vegetables, and occasional high-quality kitten food. Surprisingly, the roaches prefer the dark leafy greens as a staple.

Phoenix worms and butterworms are typically shipped in substrates not appropriate for optimal maintenance. In these species, no studies exist regarding acceptance of or alternation in nutritional profile from gut-loading diets. Phoenix worms should be macerated before being offered to insectivores. Butterworms may be calcium-dusted prior to feeding. The butterworm is the larvae of the invasive Chilean moth (*Chilecomadia moorei*) and imported larvae are irradiated prior to entry into the United States, preventing subsequent pupation. They are commonly stored at 42 to 45°F (5.6-7;.2°C) in the refrigerator to induce brumation and prevent body condition loss.

Silkworms are ordered from commercial vendors online and come with a mulberry leaf mash that provides a dietary substrate. They are usually maintained for 7 to 10 days and grow in size at an alarming rate. Silkworms are extremely dependent on the mulberry leaf mash for food and hydration and will not accept other diets.

Earthworms can be purchased from pet stores and as organic fish baits from Walmart! It is important to make sure that the baits have not been treated with pesticides. Earthworms can be housed in herbicide-free and pesticide-free soil or earth. Many people keep earthworms in organic composting beds, to aid in vermicomposting. Stomach perforation from an earthworm prey item has been reported in a Tiger salamander (Ramsey, 2008). Cutting the prey into small pieces will reduce this risk.

**Sources for Insectivore Diet Guidelines** - Online forums (e.g., [www.herpconbio.org](http://www.herpconbio.org) hosted by the Herpetological Conservation and Biology Society, HerpDigest) can also provide enthusiasts with free access to articles. Consulting with local herpetologists and reptile collection curators may provide access to diet guidelines for unique species. The Nutrition Advisory Group (NAG), a group of veterinary nutritionists who specialize in zoo nutrition, provides free access to conference proceedings and information on the nutrient composition of several prey items at <http://www.nagonline.net/>. NAG serves as the scientific nutrition advisory group for Association of Zoos and Aquariums