



Melissa Kaplan's Herp Care Collection

Last updated January 1, 2014

Dragons Down Under: The Inland Bearded Dragon

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"Oh! A horned toad! I haven't seen one of those in years!" is a comment I often hear when event-goers see my bearded dragon. To me, the resemblance is superficial: the flattened body liberally supplied with sharp-looking spikes of various sizes. The head shape is very different, however, with the bearded dragon's being bluntly triangular as opposed to the slightly rounded head shape of the horned toad (whose proper name is horned lizard, *Phrynosoma* sp.) which is also furnished with longer spikes protruding from the back of the skull. The horned lizards are native to the American Southwest while the bearded dragons are native to Australia and New Guinea.

Australia is home to a number of dragons, a name given to many of their agamid lizards which include the popular bearded dragons and water dragons. Australia has very restrictive export laws relating to its wildlife; thus, the bearded dragons found in the U.S. pet trade are descendants from founder animals imported from Europe. Bearded dragons are gaining popularity as pets. Wonderfully tempered, intriguing in appearance, quizzical in countenance, these lizards do not get very large (especially in relation to the green iguana), and require little in the nature of active training or taming to make them calm and handleable. As with all reptiles, there are important things to know before buying a bearded, and to keep them healthy and long-lived.

Natural History

For some 60 million years, the life forms in Australia evolved in splendid isolation from the rest of the earth's landmasses. Set apart, surrounded by ocean, animal life developed bizarre attributes. Along with the egg-laying mammalian platypus to the gastric-brooding frogs, from the frilled lizards to jumping joeys, an amazing variety of lizards and snakes came to be. To this day, relatively little is known about Australia's wildlife, far less than we know about Africa's.

Even less may be known about Australia's herpetofauna than its mammalian wildlife. Every one recognizes koala bears and the various members of the kangaroo family; these mammals are especially "cute" and thus were accepted far earlier than the herps. In 1963, the definitive book on Australia's reptiles was written by Eric Worrell. At that time, herpetoculture was barely beginning, and very few researchers, Australian or otherwise, were studying this sector of Australian wildlife. Coinciding with the growing interest in herpetoculture and herpetology came the Australian government's clamping down on the collection, keeping, and exporting of native wildlife, thus successfully quashing animals available not only to collectors and breeders outside of Australia, but to researchers in country as well. Since that time, things have changed, at least in terms of the interest in the herpetofauna by Australian and other researchers. Our understanding of these fascinating herps has grown by leaps and bounds; there is even now a CD-ROM comprised solely of Australian herptiles.

Bearded dragons are agamid lizards belonging to the genus *Pogona* (formerly *Amphibolurus*, under which name they are found in books published up to just a couple of years ago). There are seven species (Sprackland 1994; six according to Fogle 1993) of which the most common in the pet trade is the *P. vitticeps*, the inland or central (also called the yellow-headed) bearded dragon is the most widely available. In smaller numbers, the common bearded (*P. barbata*) and the Rankin's (*P. henrylawsoni*) have become more widely available and the number of captive-bred animal slowly increases. The other *Pogona* dragon species include the western (*P. minima*), the dwarf (*P. minor*), the Northwest bearded (*P. mitchelli*), the Nullarbor (*P. nullarbor*), and the *P. microlepitoda*. (This article will discuss the care associated primarily with *P. vitticeps* and *P. barbata*.)

Bearded dragons live in the arid, rocky, semi-desert regions and arid open woodlands. They are adept climbers, spending time on branches and in bushes, even found on fence posts when living near human habitation. They also bask on rocks and exposed branches in the mornings and afternoons.

These diurnal lizards are omnivores, voracious eaters of invertebrates and small vertebrates alike. They also forage for soft plant matter, including greens, fruits, and flowers. Like most desert dwellers, bearded spend the hottest part of the

day in underground burrows and are well adapted to the cool desert nights.

The bearded's blunt arrow-shaped head is typical of the agamids. The scales along the skin of the throat and the side of the head have specialized into spiny points. The scales along the sides of their bodies also carry these pointy extensions. When threatened, the dragons flatten out their bodies, making themselves look wider. The "beard" in the dragon's name comes from its flared-out throat, done to scare off conspecifics and potential predators. This threatening vision is enhanced by a gaping mouth. Such behavior is rarely seen in captivity, however, as these lizards adapt so well to their human caretakers. The most one usually sees is a flattening of the body and a small flare to the black "beard."

Dragons are social animals, which is one of the reasons they are engaging and interested in their surroundings in captivity. They frequently become very secure in their environment and soon stop displaying their beard. The young especially perform a distinctive "wave" as a way of communicating nonaggression. Bearded dragons also use their tongue to check out their environment.

Bearded dragons reach reproductive age at one to two years of age. During breeding season, the beards of mature males turn black. Males can also be differentiated from females by the presence of pre-anal and femoral pores (which are almost impossible to see on very young dragons, making them difficult to sex).

Older females may lay up to sixteen eggs in the early summer, in shallow "nests" dug in the sandy soil. Juveniles, which may weigh as little as 2.1 grams at hatching, are often banded and may have an orange stripe near their eyes; as they mature, the pattern becomes less distinct.

Housing

Despite their relatively modest size (adults to 20 in [50 cm]), bearded dragons are still considered by many to be a "giant" lizard and do require generous space. As adult bearded dragons will cheerfully eat animals smaller than themselves, hatchlings should not be housed with juveniles or adults. Males tend to be territorial, making even 50-gallon tanks too small for them. Overcrowding, too, can lead to aggression and stress, compounded when the subordinate animal has no place to run off to hide. Such conditions also cause injuries, including lost toes and tails, and loss of appetite, not uncommon.

An enclosure should be large enough to provide a wide temperature gradient both horizontally and vertically. Bearded dragons can be surprisingly quick (trotting with their bodies raised well off the ground), making top-opening enclosures a must. A top to the enclosure is required; this will keep the dragon from taking off on its own and will keep the crickets inside the tank. Tanks must be well-ventilated, yet able to retain heat. Tanks with parts of their top or sides made of screen often work well. Make sure the tank top is large enough and sturdy enough to hold a full-spectrum/UV light and a fixture for supplemental heating.

There is some debate about the best substrate. In their native environment, bearded dragons live in sandy desert areas. Decomposed granite or large grained sand (available as playground sand in hardware stores, as well as in pet stores and nurseries) is often used, though there have been reports of intestinal impaction. Other substrates include gravel and aquarium rock (which are more difficult to clean and disinfect), outdoor carpeting (trim loose threads), butcher paper, unprinted newsprint, paper towels and terry towels all making suitable substrates, though there is no question that the proper sand layered thickly on the bottom of the tank, with branches for climbing and basking, and rocky, ceramic, or wooden caves, and perhaps even some nonprickly succulents, make for an attractive, and relatively easy-to-maintain, vivarium. Do not use corn or walnut cob, alfalfa pellets, kitty litter, or wood shavings.

Bearded dragons have a very active metabolic rate, so plan on frequent cleaning. As their fecal pellets are dry and compact, if sand is used a kitty litter scooper may be used on a regular basis, with the tank undergoing a thorough cleaning and disinfecting several times a year. Regular replacement of the substrate assures the environment remains as healthy as possible for the dragon.

Bearded dragons need both basking and hiding areas. Ideally, the tank should be big enough to have a hiding place at both ends of the temperature gradient, plus a basking area closer to the heat source. Provide, at least, a hiding area on the cooler side, with branches and logs for climbing and basking on the warm side.

Heat

Although bearded dragons are primarily desert dwellers, they do spend the hottest part of the days in relatively cool areas; as with all desert animals, too much heat can be just as dangerous as too little.

The temperature gradient during the day should range from 76 F (24 C) on the cool side to 86 F (30 C) on the warm side, with a basking area ranging from 90-100 F (32-37.7 C). Night time temperatures can drop no lower than the low to mid 70s (21 C) on the cool side.

An undertank heating pad under the warm side of the tank will gently heat the substrate. A basking light or heating element should be positioned above so that there is a vertical gradient, with the warmest end at the top.

To give yourself as much flexibility as possible to cope easily with changing ambient room temperatures throughout the seasons, consider hooking your heating element or basking light to a thermostat. There are several models available, ranging from those that are hardwired into the tank to plug-in ones with simple dials. An even easier method is to plug the heating element or basking light fixture into a table lamp dimmer switch. Check around for a model that gives you many setting options; some have only three (off-dim-bright) which may be too limiting for your needs.

If using a ceramic heating element, you should use a porcelain light socket as the socket part of the fixture can get very hot; the last thing you want is meltdown or fire. If using high-wattage light bulbs, make sure that the light fixture you are using is rated for the wattage of the bulb; some fixtures can safely handle bulbs up to 150 watts, which could be a problem if your bulb is over 200 watts.

Use at least three thermometers to check your temperatures: one on the cool side, one on the warm side, and one in the basking area. Place them where the animal spends its time, not just where it is convenient for you.

Light

Bearded need daily access to a UVB source, either being regularly exposed to direct sunlight, or to [UVB-producing fluorescent tube](#) such as Duro-Test's Vita-Lite or Vita-Lite Plus, Zoo Med's Iguana or Reptisun lights (5.0+) or similar UVB-producing fluorescent tube. Incandescent lights, while suitable for use as heat sources, do not provide the full spectrum required by reptiles, including no UVA and never any UVB. Plant lights and many aquarium lights are wide-spectrum rather than full-spectrum lights, and so should not be used other than as supplemental lighting or heating in addition to the full-spectrum lighting. The term "full spectrum" is incorrectly used by incandescent light manufacturers whose lights are suitable only for producing heat and light; they do not produce the UVB required for calcium metabolism. For additional information on the different heat and light sources available, please read the [Lighting and Heating](#) article.

A UVB-producing tube that also produces white light may also be paired with a fluorescent BL black light (not a screw-in Halloween or so-called poster light) to provide additional UVB, the wavelength that essential in the metabolism of vitamin D3. Some herpetoculturists feel that it is beneficial to provide additional UVB to desert lizards.

Make daily lighting easy for you. By plugging the light fixture into an appliance timer, such as those made for table lamps, you can set the light to go on and off automatically. When you use a timer, your lizard won't be left in the dark all day or in the light all night if you work late or have to go out of town for a day.

Never use a white light of any sort at night, for lighting or for heat. This will stress your animal, eventually affecting its ability to thrive through the resultant lack of sleep, loss of appetite, and other stress-related symptoms. If you need to provide supplemental heat at night in addition to the undertank heating, use a ceramic heating element or a nocturnal reptile bulb; the former produces no light, while the latter produces a dim bluish-purple light.

Water

Always provide fresh water for your dragon. It should be in a bowl or dish shallow enough for your lizard to see easily into and drink out of; deeper bowls can be half-sunk into the substrate. Due to the corrosive action of hot water on copper pipes in hard-water systems, use only cool or cold water if using tap water for drinking water.

Your bearded will enjoy a shower now and then: a light misting with water will also help keep the skin humidified to make it easier to shed. The tank, however, should never be damp.

Food

Warning!

You must feed very small prey to baby bearded dragons. While the rule-of-thumb for feeding lizards says that it is generally safe to feed prey that is 2/3 the size of the lizard's head, this is not advisable with baby bearded (0-4 months). When fed prey that is too large for them, serious physical problems often result: partial paralysis, seizures, ataxia (loss of motor control), inability to self-feed, gut impaction, even death. Start with feeding pinhead crickets and tiny, freshly molted worms, moving only slowly and gradually to larger sizes, phasing in day-old pinks when they are ready for them. Despite the fact that most stores sell animals that need them, most don't sell pinheads, so you will have to order them directly from a [cricket](#)

[breeder](#); you can order mealworms from them at the same time.

The bearded dragons are omnivores, with plant foods comprising about 20 percent of their diet. Since these lizards consume a wide variety of invertebrates and small vertebrates in the wild, a variety of protein sources must be offered in captivity. Prey items such as appropriately sized cultured crickets, cockroaches, mealworms, king worms, and wax worms can be fed, along with pink mice. Make sure the invertebrates are freshly molted to reduce the amount of tough, indigestible exoskeleton the dragon will ingest; exoskeletons can cause intestinal impaction so the least amount ingested the better. As the dragon grows, it is better to feed him mice (pinks, fuzzies, crews, young adult) rather than mostly insects. Whole rodent prey is more nutritious - and will not cause the impaction that insect prey can.

Feed your invertebrate prey before feeding your dragon. Prey bought from pet stores are generally in dire need of a good meal, having subsisted on cardboard or bran for several days at least. Sprinkle or dust prey with a calcium supplement just before feeding them to your lizard 3-5 times a week (more for baby and pregnant dragons), and use a multivitamin supplement 2-3 times a week (more for babies and pregnant females). Prepare an enclosure for your crickets, furnishing it with pieces of egg crate or cardboard cores from paper towels and toilet paper. Pieces of fruits and vegetables, as well as food such as high-protein baby cereal mixed with reptile vitamins, tropical fish flakes, and rodent chow, all make suitable foods. Since smaller crickets are more nutritious than larger crickets (proportionately less exoskeleton) it is better to feed out more of the smaller ones than fewer of the big ones. For additional information on housing and feeding prey invertebrates, read the article on [Feeding Invertebrate Prey](#).

Plant matter includes a variety of shredded or torn vegetables and fruits such as green beans, orange-fleshed squash, carrots, escarole, parsley, mustard, dandelion and collard greens, raspberries, mango, and cantaloupe. (A good mixed salad is the [iguana salad](#) recipe in my iguana care document.)

A note for those concerned that feeding mice to bearded dragons causes fatty liver disease: I encourage you to read the information I put together a couple of years ago when the same concerns were raised about feeding mice to savannah monitors. The articles are:

[Hepalipidosis: Prevention is the Cure](#)

[Michael Balsai on the Savannah Monitor Diet](#)

Handling

Gently scoop up your dragon with your hand under its belly. Dragons tend to be very trusting and will not necessarily hold on as will other lizards, so always take care to support your dragon. They do not like being firmly held; let them rest in your palm with your fingers gently curled over the back. Dragons are inquisitive animals, so create a controlled space in which it may do some exploring.

Health

In general, the information on prey size discussed above, and the articles in the [Health, Illness & Stress](#) section will help you deal with most things that can affect bearded dragons. There are two additional health problems of growing concern with bearded dragons that you need to know more about: [adenoviruses](#) and [yellow fungus](#).

Related Articles

[Adenoviruses in Reptiles](#)

[Feeding Prekilled Prey](#)

[Feeding Invertebrate Prey](#)

[Prey Sources](#)

[Lighting and Heating](#)

[TIGR Reptile Database](#)

Looking for more information or the answers to some questions? Subscribe to [POGONA](#) - the Bearded Dragon Mailing List - where you will be able to talk to (and read posts from) lots of bearded dragon keepers and breeders. For more

information on Adenoviruses and other diseases of bearded dragons, check out the [Bearded Dragon Diseases](#) email list.

www.anapsid.org/bearded.html

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