

CHUCKWALLAS: CARE + BREEDING



By Phillip Lietz (a special thanks to Nick Dokai, a good friend without whom this would not be possible)

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All photographs by Phillip Lietz



INTRODUCTION:

The Common Chuckwalla (*Sauromalus ater*) is an icon of North American Herpetofauna. Famous for their natural defense tactic of wedging themselves into rock crevices and inflating their bodies with air to prevent their removal by predators, these mostly herbivorous desert lizards are the USA's ecological cousin of the Uromastyx. The mainland species is native to California, Arizona, Nevada, and Utah. A few unique representatives are found on islands off the California and Baja California coasts. Across this range they occur in a brilliant array of color forms such as Redback, Carrot Tail, Granite, White Tail, Yellow Tail, Speckled, Banded, Calico, and others. They make their homes on piles of giant boulders and stoney fields, thriving in some of the harshest habitat on this planet.



Many factors contribute to making these lizards wonderful pets and interesting breeding projects alike. With the exception of 2 island forms, Chuckwallas are a bit smaller than the average pet Bearded Dragon which makes it simple to provide Chucks with excellent housing conditions. A mostly (but not exclusively) herbivorous diet is easy to provide, especially if insects make you squeamish, and usually results in a cheaper food bill. Chuckwallas have the potential for a long life with numerous individuals being recorded living into their late 20s. Chuckwallas are quite intelligent and easily develop trust with a keeper and are not very inclined to bite when bred indoors. Chucks are visually striking and physically impressive with muscular bodies and displaying marvelous color and contrast. All of this plus their extraordinary hardiness contribute to making them excellent pet options for

new and experienced Herpetoculturists alike.

I am not a scientist or biologist or researcher. I am a passionate Herpetoculturist and I have kept and bred multiple types of Chuckwallas for over 15 years. This guide is a compilation of my experiences working with Chuckwallas and is intended to help add to the limited amount of up to date information available as to their care and breeding. As my knowledge and experience with Chuckwallas expands, I will update this care guide. It's also worth noting that there are many ways to care for them well and none of this is intended to be prescriptive. I hope you find use for this information and that it helps you maintain happy and healthy Chuckwallas for many years!



SELECTION/SOURCING:

At the time of this writing (2024) sourcing quality captive bred Chuckwallas can be somewhat challenging. Chuckwallas are rarely bred in captivity and inconsistently collected from the wild for the pet trade. For decades they were ripped from Nevada rock piles by the thousands and wholesaled for small change. While they are not captured from the wild as often or in such large numbers, some still make it into Herpetoculture that way. Wild caught Chucks are pretty challenging to acclimate to life indoors but clearly deserve a strong effort from anyone attempting to do so. Quality breeders are present in the US and Europe but they are few in number and an even smaller number of those breeders have steady production each year. Consistent yearly production of healthy Chuckwallas is highly

uncommon and thus true CB (captive bred) animals fetch a modest (and well deserved) price tag. Expect to pay between 300-600 USD for a healthy Chuckwalla directly from a breeder.



Online classified pages, social media groups, and internet marketplaces are all useful tools in locating Chuckwallas for sale and the variety of enthusiast groups on platforms like Facebook contain helpful resources and other keepers who are excited about sharing information. Keep an open mind, don't be afraid to ask, speak with other keepers for breeder reviews, and be patient locating Chuckwallas for sale, it will pay off!

Stay clear of buying a Chuckwalla that displays any of the following worrisome signs: protruding hip bones, sunken eyes, watery/leaky eyes, unhealed surface wounds, gunk or buildup around the mouth/gums, visible external parasites, or any other potential health

issues. Healthy and well conditioned Chucks have excellent muscle tone, bright and alert eyes, thick tails, mostly clear skin/scales, unimpeded movement patterns, and eager appetites. When not yet tame or trusting, a healthy Chuckwalla will also be quick to dive into a rock crack to hide.

If a captive bred option is not available, which is often the case, look to start with a younger animal. Babies and younger Chuckwallas adjust more quickly and readily to new conditions and can be more forgiving of beginner error. Adults that were wild collected can still settle in and do well, but it can take many months for them to develop a routine and adjust to the change. Wild caught adults can also take much, much longer to develop trust with a keeper and some never become pet type animals.

Whenever possible you should seek a captive bred reptile or amphibian. Supporting the efforts of dedicated breeders is one of the most basic ways to improve the welfare of animals both indoors and reduce pressures on them in the wild. Good quality breeders provide more than just a healthy and happy animal. They will also provide parental and health history of their animals and should offer both care information and ongoing support to help you succeed with your new Chuckwalla.

A NOTE ABOUT LOCALITY AND COLOR FORMS:



I briefly mentioned in the introduction that Chuckwallas exist in a wide variety of color forms. This topic is important to unpack for the sake of buyer and keeper clarity. This section

will address this so newcomers can better navigate the various color forms of Chucks and thus be more able to make informed choices in selecting and propagating them into the future.

As of the time of this writing (2024) current classification groups all varieties of the mainland Chuckwallas into a single species called *Sauromalus ater*. Within the United States these lizards occur in California, Nevada, Arizona, and Utah and within each state there are multiple color forms of Chuckwallas that include but are not limited to Granite, Redback, Carrot Tail, White Tail, Yellow Tail, Speckled, Banded, and some variation within each of those forms. For the most part each of these color forms corresponds to a specific locality.



However, some types occur in more than one location. For example, Carrot Tail Chuckwallas are found exclusively on South Mountain in Arizona and are protected within the borders of South Mountain State Part and Preserve. Redback Chuckwallas on the other hand occur in many localities in both Arizona and California with substantial variety between those locations. A Redback from one range is often indistinguishable from a Redback from another range hundreds of miles away and with no recent genetic relation. Further compounding this complexity, each locale contains within it quite a spectrum of looks of the same color form. One mountain range of Redback Chucks can have both stunning and drab individuals. When Chuckwallas are imported by wholesalers they are almost never kept sorted by locality or color form. This situation means that it can almost impossible to trust that a group of Chuckwallas purchased from a wholesaler are the same locale or the same color form, offering yet another strong reason to support the efforts of dedicated breeders.

Technically, since all mainland Chucks are the same species, there is no issue with breeding and crossing color forms with each other. However, it may be wise to maintain like x like breeding or locality specific breeding with the possibility of future speciation at the classification level. All of the different kinds of Chuckwallas breed together and the resulting offspring of one type bred to another usually yields an anticlimactic mix of both. Those of us that have worked with multiple kinds of Chuckwalla will attest to the numerous differences between each type in many respects other than adult coloration. The differences are many; maximum size, hatchling size, incubation duration, hatchling appearance, and subtle differences in body structure. This suggests there may be future fracturing of the current single species distinction which would be a return to past classification status. I am personally unopposed to the crossing of localities, species, sub species, etc. But this preference will vary from keeper to keeper making this information very necessary for those with different perspectives than mine. If you desire to maintain a specific locality type or color form, it is absolutely vital to be certain of the source of the animals you buy.

ENCLOSURE + SETUP:



Chuckwallas are often described as terrestrial or ground-dwelling lizards. While they definitely live out their lives on the ground, visiting these lizards in their natural habitat can make it challenging to describe them as terrestrial in a classic sense due to how frequently they inhabit very large rock piles, boulder fields, and steep cliff sides. I offer this information to encourage you to utilize the vertical space in whatever enclosure you decide to utilize.

Many seek a minimum size enclosure because space inside the home is prime real estate and keepers are seeking to make the most efficient use of their space. While I prefer seek a maximum size enclosure for my reptiles, I understand the spirit of the need for a minimum size and I recommend nothing smaller than a 4ft x 2ft x 2ft enclosure for a single Chuckwalla. Each additional Chuck in the same enclosure should add 1ft or more to each dimension. Chuckwallas are very active lizards and both babies and adults will explore every bit of space they are provided. I house one of my current groups of 3 (1 male and 2 females) Granite Chuckwallas in a spacious 8.5ft x 5ft open top pen littered with stones and features.

A mixture of sand and pea gravel is my preferred bedding mixture. Many types of substrates can be used to good effect including sand, newspaper, alfalfa pellets, sani-chips, cypress mulch, and unfinished slate slabs. Some prefer to use more naturalistic bedding like sand or gravel, others enjoy the lack of dust in bedding like slate. Consider factors such as ease of cleaning, price, low dust, and the animals ability to grip and dig.



Far and away the most important feature of the enclosure for a Chuckwalla is access to narrow *crevices*. These lizards are extremely adept at inhabiting crevices between stones and without them they feel very insecure. While there are many ways of providing these small, snug crevices, my favorite way is by utilizing stacks of Spanish style roof tiles. These are not exactly commonly found and I have to source mine from local brick yards. Make sure that when stacking any stones or features that they are secured in place and won't fall or move. Chuckwallas are much stronger than they may seem and can dislodge stones and get

crushed.

Make sure to offer as many hiding places and crevices as possible, a single one is not enough. Attempt to have a variety of crevice choices and shelters that are differently sized, shaped, orientations, and proximity to heat. The access to so much choice will give your Chuckwalla options for where to shelter at different temperatures, humidity levels, and snugness. Chuckwallas are fairly adept climbers and climbing cacti and ocotillos is part of their natural behavior to forage on both leaves and flowers. Other than tall stones and rock piles, I use Manzanita branches and Mopani Wood to provide climbing options for my Chucks. When choosing how to layout your cage furnishings it is extremely useful to obtain photographic reference of wild habitat as a guide. If possible, visiting Chuckwalla habitat is another way to gain insight into how they interact with their environment and how you might replicate that indoors. Nature creates perfect design work and there's no reason to rely on just your imagination to create your animal's living space.



Chuckwallas can be housed individually, in male/female pairs, and in small groups consisting of a single male and multiple females. Unlike *Uromastyx*, Chuckwallas are not quite as territorially aggressive and will manage their relationships well in most cases. This does not mean that scuffles and fights will never occur, but they rarely escalate to concerning levels. Keep in mind that it may be necessary to separate grouped and paired animals occasionally if cage mate aggression gets out of hand, so have a backup enclosure on hand and ready to use in that event.

HEAT AND LIGHT:

Chuckwallas evolved in the harsh North American Deserts and as such they like their temperatures and lighting high and very bright. Ideal temperature, UVB, and light gradients are one of the fundamental pillars of health for Chuckwallas (and all reptiles and amphibians) when kept indoors.



I heat my Chuckwallas identically to my Uromastyx species by giving them a basking zone (an area large enough to fit the *entire* body) that reaches a 125F maximum and a rough ambient warm side temperature of between 100-110F. Moving across the enclosure to the middle I seek a temperature of approximately 90F and then onto the cooler end of the space the temperature should drop all the way into the upper 70s. Some variation on these temperature ranges is just fine, you aren't necessarily trying to hit a bullseye but instead trying to as close as you can. A few degrees warmer or cooler will not make the difference between health and lack of health.

Bright and wide-beamed halogen bulbs are best for basking purposes. Usually more than 1 basking light will be needed to achieve proper temps with a wide enough beam to fit the entire lizard(s). Take the time to experiment with bulb combinations and/or bulb and heat projector combinations to find a setting that reaches the desired gradients in your specific region of the world. Exact wattages for basking lights and other heat emitting products will vary based on the local temperatures where you live, the temperature inside your home,

cage materials and insulation, and time of year. You will need to keep multiple bulbs on hand both to change as the seasons change but also as backups in the event of a light burning out.

High powered UVB lighting is vital for the proper functioning of these desert lizards. In my enclosures I provide the highest percentage T5 UVB lighting I can access (Exo Terra, Arcadia, and Zoomed Labs are all suitable brands) and extend the light across the length of the enclosure. Mercury vapor bulbs can also be used though they have a somewhat less ideal visible spectrum. I often employ a combination of Halogen, T5, Mercury Vapor, and supplemental LED lighting in many of my enclosures for all of the various species of desert lizard I maintain. The flexibility provided by these combinations shouldn't be taken for granted but it is also not a requirement to use every single type of light in every single enclosure.

In the same way that you want to have warm and cool places and allow your Chuckwalla to choose, the same is true of UVB exposure. This means providing ways for the Chucks to get closer to and further from the UVB light. Be sure to follow the directions on the packaging for the light to determine what distances are safe for exposure and do not break that direction.

It is worth considering brightness an equally relevant and important metric as temperature gradients or UV exposure. Adding supplemental lighting to increase overall brightness during the peak hours of the day will benefit your Chuckwalla's long term physical and psychological health and can be another avenue for controlling and improving temperature gradients inside the enclosure. Some keepers choose to use LEDs as supplemental light, some use non-UVB producing tubes, and others use low wattage halogens and incandescent bulbs. All work very well for this purpose.

Chuckwallas are quite cold tolerant. I've observed them in the wild exposed in a wide rock crevice at 45F. When keeping them indoors night time temperatures can drop into the low 60s F regularly and in the winter seasons night temps can drop even further. This is not only safe but very likely healthful for the animals. Experiencing a full range of temperatures will help the animal(s) experience a wider range of healthy metabolic function.

DIET AND SUPPLEMENTATION:

Diet is yet another foundational consideration in the effective keeping and breeding of any reptile or amphibian. Seek to provide the most diverse diet that you can and be willing to experiment with different and novel food items. A wide variety of fresh greens and produce can be fed to Chuckwallas. About 85% of the diet I feed my Chuckwallas is made up of greens/plants/flowers, 10% is made up of dry food options, and 5% is made up of insects and seeds. The menu of fresh greens can include endive, escarole, collared greens, kale, radicchio, romaine lettuce, bok choy, dandelion greens, turnip greens, pea sprouts, frisee, and mustard greens. Small amounts of chopped or shredded hard vegetables are great to offer in limited amounts such as carrots, butternut squash, zucchini, and spaghetti squash.

Wild plants and flowers are an excellent way to add different nutrition to the diet for Chuckwallas. The wild plants I collect to feed are Bindweed, Hollyhock flowers, Hibiscus, Nasturtium flowers, Wild Alfalfa, Rose petals, Mulberry leaves, Sunflower petals, Squash flowers, Phlox, Grape Leaves, Dandelion flowers, and Clover.

Chuckwallas will also forage on a number of types of dry and commercial foods. RepCal Juvenile Iguana Pellets, Arcadia Optimized52, Mazuri Diets, Zoomed Grassland Tortoise Food, and Tortoise Supply Herbal Tortoise Hay are all solid options I give to my Chucks. They each have their individual preferences and tastes, but so far I have not had a Chuck that wouldn't eat all of these foods to one degree or another.

Insects can also make up a small portion of the diet. I preferentially offer insects

more to hatchlings and gravid females than for average adults. Mealworms and grasshoppers are the primary two types of insects I prioritize. I have heard of Chuckwallas taking roaches of different types, horn worms, wax worms, crickets, super worms, and spiders. I don't offer any of those to my animals but are worth keeping in mind as options. I also have personally witnessed a Chuckwalla eat a pinkie mouse and a baby Chuckwalla (so be careful)!

I also offer my Chuckwallas a limited range of seed mixtures to help add variety and roughage. This practice was inspired both by their likeness to Uromastyx and by visiting Chuckwallas in the wild and examining their dried feces. Various kinds of Finch/Parakeet seed and food mixes work well for this purpose, though their use should be very conservative. Keep this offering to small amounts and infrequent feeding so as to not overload on such food.



In terms of meal frequency, I tend to encourage a minimalistic approach to feeding. This is mostly because so many of us unconsciously lean towards the 'slightly too much' side of the scale. Not only do I add in 2-3 fast days per week, I also don't overload my animals with food when they are fed. Obesity is always something to avoid and manage in reptiles kept indoors. A reliable layout I've been using for years for adult Chuckwallas has been 3 days a week of fresh greens, 2-3 fast days per week, and 1-2 dry food and seed feedings per week. The dry and seed feedings can occur on the same days as greens if necessary. This is a rough outline and deviations from a routine are great.

Supplementation routines vary profoundly within the Herpetoculture husbandry discourse. I am not convinced about the efficacy of any one method in particular and surely all of them have some level of utility. I attempt to deliver most nutrients to my Chucks by way of a highly varied and nutrient dense diet coupled with powerful lighting, but I still provide small amounts of supplementation. For adults and babies I use a calcium carbonate powder on food approximately 3 times a week. Once a week I put a similar Multivitamin powder on food. This is not an exact science and I encourage you to change it up often both in terms of frequency and brand of supplement. Any of the commercially available Multivitamin and Calcium supplements are excellent and can be used for Chuckwallas. Follow the directions on the packaging for use if you prefer to follow a more rigid schedule.

Yet another consideration around feeding is food presentation. Simply chopping up food items and placing them in a bowl day in and day out is sufficient, but can be extremely boring. There are ways to help Chuckwallas work and exercise for their food to help bolster their psychological as well as physical wellbeing. This can take the form of migrating the food bowl around the enclosure so they have to seek it out, hanging foods from a string or hook so the lizards have to stand or jump for the food, hiding foods in novel parts of the enclosure, and target training for food rewards. Get creative! Your Chuckwallas will benefit from as much variety in this realm as you can provide.

SEXING:

It is important to determine the sex of a Chuckwalla either out of preference for a pet or if your goal is to eventually breed your animals. Distinguishing between male and female Chucks is a simple task in adult animals but can be very challenging in immature ones. Adult Chuckwallas are often sexually dimorphic with males showing the most color and contrast, but visually comparable females do exist. Typical features of male and female lizards apply to Chucks; males have enlarged wax secreting femoral pores and the presence of large hemipenial bulges below the vent whereas females either lack these features or have them much reduced compared to males. These features are the primary way to determine sex because secondary sexual characteristics like wider head shape in males, heavier body shape in males, tail shape differences, and behavior differences can be very fluid and can be unreliable. Sticking to the primary sex differences can help ensure fewer errors in sexing these lizards.

Similar to *Uromastyx*, Chuckwallas typically require substantial growth after hatching

before they can be accurately sexed. I don't usually feel comfortable labeling an animal as female until it is over a year old and fairly decent in size because it is not uncommon for an animal that looked female for the first year of life to suddenly reveal themselves as a hidden male that simply hadn't developed the identifying features yet. This can be frustrating but patience is important. Males often show themselves as young as 3-4 months old.



BREEDING:

Much like other lizards, a winter cycle or brumation period can induce breeding in Chuckwallas. While it is likely that cycling is the most effective way to help make reproduction more likely, many animals will breed without it. Winter cycling can take place from October to February and can last from 5-8 weeks or more in duration. Many Chuckwallas will cycle on their own without any stimulation from the enclosure setting, but you can encourage the process by gradually adjusting 3 primary levers; reducing length of daylight hours, reducing both night time low and daytime high temperature, and reducing overall food intake both in amount and frequency of feeding. These reductions should not be implemented overnight, but gradually reduced little by little over the course of 2-4 weeks and then slowly ramped back up to normal over 2-4 weeks.

A few weeks after this winter cycle breeding behavior can be observed. Sometimes you may not witness the actual mating or behavior, but instead just see small bite marks on the nape of the female which can indicate breeding attempts from the male. Often a brief separation of the male from the female(s) can result in more aggressive breeding attempts from the male. There are several ways to provide nesting options for gravid Chuckwallas. A standard nest box made of a small opaque rubbermaid tote with a side entry corrugated tube about 3 inches in diameter can work for some. I have the most success with a narrow tunnel created by placing 2 rows of short bricks about 8 inches apart. I then fill the gap between the bricks with moist sand and coconut fiber and cover the top by laying unfinished tiles on the bricks over the bedding. The gap between the bricks is left open on one side and extends for 12-24 inches until it hits a wall of the enclosure. Gestation can last between 6-8 weeks after mating before eggs are laid. Most Chuckwallas will lay a single clutch per year usually containing 6-12 eggs but larger clutches can happen. While uncommon, the occasional double clutch does happen. This season (2024) I had 1 female Granite Chuckwalla lay 3 clutches in a single season.



Chuckwalla eggs can be incubated between 84-92F and will hatch after about 75-90 days of incubation. I prefer to incubate in the 88-91F range and see incubation durations of 70-77 days on average. Fresh hatchling Chuckwallas emerge from their eggs vigorous and ready to conquer the nearest rock pile! Their first meal should be crushed pellets of poop

from other Chuckwallas to help establish a healthy and well functioning gut biome. This behavior is natural and necessary and is a common behavior in different animals for different reasons. Baby Chucks and Uromastyx alike will seek out adult and older animal feces and eagerly pick them apart not just at hatching but for weeks and often longer after that. Special care should be taken to ensure the babies, small enough to cram themselves into even the smallest sliver of a crack or crevice, cannot get stuck or crushed under or in between cage furnishings. The care of hatchling Chuckwallas is otherwise identical to the care of adults.



THE FUTURE:

While predicting the future is never a good bet, it is fun to speculate on how things may develop. I don't think Chuckwallas will ever be at the popularity level of something like a Bearded Dragon or Leopard Gecko, at least not here in the USA where they are native to 4 states and thus can't be sold inside those state lines. Despite that hurdle, Chuckwallas have many other unique and positive qualities that lend them to a demand within Herpetoculture and thus should be responsibly managed and stewarded into the future. Surely that future looks different based on what sort of persons will be keeping Chuckwallas as pets and breeding projects. The diversity of keepers is a good thing and all types of keeping should meet solid baseline ethic standards regardless of if that type of keeping contains genetic mutations, locality purity, naturalistic enclosure design, or enriched minimalistic keeping tactics.

While Chuckwallas are mostly divided by species and locality types, it's possible that in time morphs or color mutations may crop up and become more prevalent. Myself and Nick Dokai found a naturally occurring T+ albino Redback Chuckwalla in the wild and Nick

invested the time to prove out the trait indoors. Nick also had in his collection what he believed to be an axanthic Granite Chuckwalla. The more time that passes and the more people that keep and breed Chuckwallas the more likely the occurrence of such mutations become. Rather than fight against such developments I think it is of utmost importance that extra care be taken to propagate mutations responsibly. This means not perusing the development of a mutation that causes harm to the animal (think of a Scaleless mutation in any reptile or Enigma or Lemon Frost Leopard Gecko) and chasing sturdy representatives of these reptiles over emphasis on their paint job.



T+ Albino Redback Chuckwalla (adult above, babies below)



PHOTOS:



