Domesticated Mice (*Mus musculus*) and Domesticated Rats (*Rattus norvegicus*)

Introduction

Domestic mice and rats, also known as "fancy" mice or rats, are the domesticated forms of one of two species of rodents, the house mouse (*Mus musculus*) and Norway or brown rat (*Rattus norvegicus*). They are a widely cosmopolitan species, bring found in most environments worldwide, often in close association with humans. It is believed, however, that the house mouse is indigenous to Asia, likely China or India, while the Norway rat maybe indigenous to northern China, and perhaps other counties in Asia. This perhaps makes these two species the most successful mammals worldwide after humans. Through many generations of selective breeding and propagation, domestic rats and mice have also become perhaps the most widely utilized mammals in many areas of scientific, biological, and medical studies and research as model organisms. Examples of their uses in many scientific fields and industries can undoubtedly be detailed at much greater length.

While rats and mice have long held a widespread, negative reputation and stigma as household, industrial, and agricultural pests known to spread a wide variety of transmittable and sometimes devastating human diseases and death throughout the world, such as the bubonic plague, toxoplasmosis, and Q-fever, for example, domesticated varieties of these rodents have long been artificially propagated by humans, and now exhibit drastically differing physiological, psychological, and morphological characteristics (being available in a wide variety of colors and patterns) from their wild counterparts, and with ample evidence demonstrating they pose no more of a human or public health risk than any other commonly kept and domesticated pet species when acquired from reputable sources.

As a result, an entire ancillary industry has formed over the decades towards maintaining and propagating feeder rodents for many different carnivorous reptiles, amphibians, and other animals using industry developed humane care and euthanasia standards designed by the Pet Industry Joint Advisory Council (PIJAC) and United States Association of Reptile Keepers (USARK). Feeder rodents, in their whole form, typically provide most, if not all of the calcium and other nutrition most carnivorous animals require without additional supplementation.

Another reason feeder rats and mice are widely used is due to their relatively quick reproductive and growth rates; however, rats and mice typically are not long-lived animals and see a longevity of 18 to 30 months or slightly more on average. Although the vast majority of captive snakes and other carnivorous reptiles and amphibians have, or can be acclimated to feeding on frozen/thawed, or otherwise pre-killed rodents, this guide is intended to serve as a reference point for anyone who may be interested in trying their hand at keeping or propagating live rodents for their animals, or otherwise may find themselves having to foster or maintain live rodents as feeders for several reasons. Finally, although offering pre-killed feeder rodents is typically preferred over live in most scenarios, it should be important to at least note that if live feeders must be used for any of several reasons (such as an animal that only accepts live), that a live

rodent never be left unattended within an enclosure with the animal it is intended to be fed to, as live rodents can, and have caused serious injury or even death to captive reptiles as a result.

Taxonomy-Domestic Mice:

Life: All living, physical, and animate entities
Domain: Eukaryota
Kingdom: Animalia
Phylum: Chordata
Class: Mammalia
Order: Rodentia
Family: Muridae
Genus: Mus
Species: *Mus musculus**
**Taxonomy subject to change and revision.*

Taxonomy-Domestic Rats:

Life: All living, physical, and animate entities
Domain: Eukaryota
Kingdom: Animalia
Phylum: Chordata
Class: Mammalia
Order: Rodentia
Family: Muridae
Genus: Rattus
Species: *Rattus norvegicus**
**Taxonomy subject to change and revision.*

Experience Level Required
Novice/Beginner to Moderate/Intermediate.

Legal and Regulatory Status (*Subject to Change)
Consult with your local, municipal, and state ordinances and regulations for any ownership restrictions.

Sizes
See size chart and descriptions below.

Housing and Enclosure
Domestic rats and mice can be housed in a variety of simple to intricate enclosures and setups depending on one's preferences and purposes for maintaining them (as pets, feeders, research, or other purposes). Any enclosure that is used should be sturdy, secure, and adequately ventilated, as well as escape proof (rats and mice can be escape artists). Wire cages can provide excellent ventilation and visibility, but are often not very escape proof, and can cause injury if the rodents try to climb or walk on a bare wire surface. Generally, a minimum of a 10 gallon aquarium or terrarium with a securely fastened screen top or lid, plastic tub or container with a secure lid and section cut out and covered with wire or plastic mesh, or inexpensive commercially available plastic or fiberglass laboratory tubs or enclosures of similar or equivalent size can be used to house one buck (male) and three does (female mice). Increasingly larger enclosures should be

considered for larger colonies, or larger specimens of either rats or mice (the types of enclosures in general are similar for both). Substrates which can be used can include pine or aspen shavings, Sani Chips, hay or straw, paper towel, newspaper, or other shredded papers. Do not use cedar shavings, as this substrate can be toxic or irritating to rodents. One or more hide boxes and/or nesting chambers should be provided as well, and can consist of cardboard or plastic hides.
A commercially available water bottle for rodents and other small animals should also be provided inside the enclosure using Velcro or wire, but should still be easily accessible by the rodents housed within the enclosure. Additional furnishings for exercise and added enrichment are not required, but recommended, and can include solid or wire exercise wheels, ropes for climbing opportunities, toilet paper and paper towel rolls for hiding and chewing, and additional toys.

Temperature, Lighting, and Humidity

Heating and temperature wise, rats and mice can be maintained at around room temperature from 65 to 72 degrees F., but do not drastically exceed or fall below this range of temperatures for prolonged periods of time. Otherwise, not additional or special lighting or heating requirements are needed for feeder rodents. Clean enclosures or tubs at least once to twice weekly by disposing of the substrate and washing with a mild water and bleach solution. Ensure any resident rodents are removed and secured elsewhere to prevent escape. It is also important to ensure the enclosure is thoroughly rinsed and dried prior to returning the rats or mice to them.

Feeding, Diet, and Nutrition

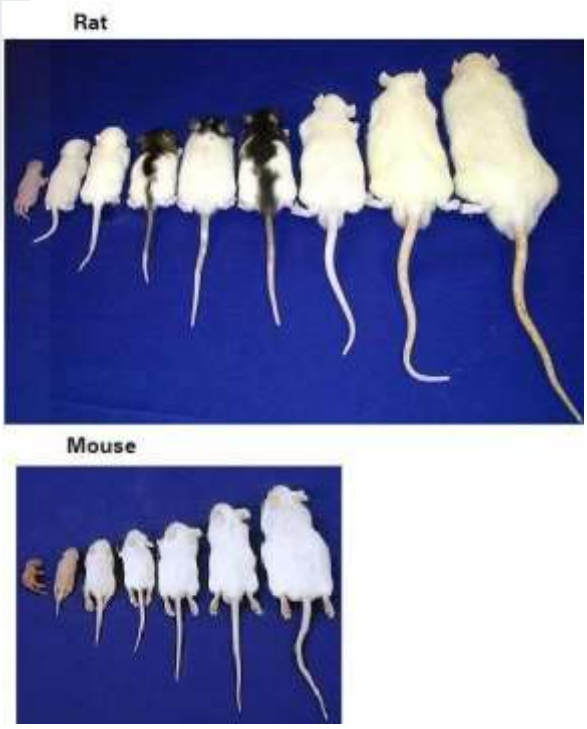
In the wild, their wild counterparts, the house mouse and Norway rat, are omnivorous, feeding on a wide variety of almost anything they may find. Diets of these rodents in the wild can include, but are not limited to grains, nuts, berries and other fruits, vegetables, eggs, carrion (dead and decaying animal matter), and discarded human food and trash. They may also occasionally eat small fish, smaller rodents, small reptiles and amphibians, or young birds if conditions are right.
In captivity, and as feeders, rats and mice should be provided a varied diet whenever possible. Many commercially available and home-made diets and mixtures will work well for feeding rodents, including any of the commercially available rodent lab blocks (but note their ingredients and composition percentages), seed mixes including diets such as hamster food, wild bird seeds, rabbit pellets, horse feed, or other bread and grain based diets. Rice, oats, and wheat can also be included in many mixed diets. Additional protein is also recommended in feeder rodent diets, including dog foods and dog milk bones, scrambled eggs, mealworms, waxworms, or other feeder insect larvae. For a more naturalistic diet, various fruits, vegetables, table scraps, meat, and/or dairy products can be given, but pay attention to their nutritional content and ingredients. Provide fresh and available food in the enclosure on an ongoing basis and clean and replace when soiled or stagnated. More specific dietary and supplementary product suggestions and recommendations that can best suit one's needs, as well as those of one's animals can be given as well.

Handling

Rats and mice are obviously small animals, and care should be taken when handling them to prevent injury to them. They do not have the greatest of eyesight, and may walk or climb off of surfaces if not supervised or properly handled. Handling them by the tail is also not suggested, as this may cause vertebral injury to them. Despite this, they can still be robust and resilient animals when handled or restrained properly. Domesticated rats and mice are typically not aggressive or defensive, but, as with any animal, may still bite if injured, severely threatened, or otherwise handled roughly. When nervous, they may also defecate or urinate as well, however. They have also proven to be quite intelligent animals as well, with domesticated rats being able to even be

trained to a degree. Regarding euthanasia of feeder rodents, there are many different methods and mindsets as to how this may be accomplished. However, the most widely accepted and humane means is through construction of a homemade CO2 chamber using a variety of materials (which can be provided upon request to anyone interested in aspects beyond the scope of this article).
Also remember to be sure to practice basic cleanliness and hygiene associated with proper husbandry after touching or handling any animals or animal enclosures to prevent the possibility of contracting salmonellosis or any other zoonotic pathogens

Domestic Rat and Mouse Sizing Chart (*Credit Aussie Pythons & Snakes):



	Age	Weight	Length*	Equivalent
Mice Pinkies	1-5 days	0.5-3 grams	0.5-1"	
Mice Fuzzies	6-13 days	3-6 grams	1-1.5"	Rat Pinky
Mice Hoppers	2-3 weeks	7-12 grams	1.5-2"	Rat Fuzzy
Weaned Mice	3-4 weeks	13-18 grams	2-2.5"	Rat Fuzzy
Large Mice	4-6 weeks	19-25 grams	2.5-3"	Rat Pup
X-Large Mice	6 months +	30 grams +	3" +	Weaned rat

Rats:

	Age	Weight	Length*	Equivalent
Rat Pinkies	1-6 days	3-8 grams	1-2"	Mouse Fuzzy
Rat Fuzzies	7-13 days	9-20 grams	2-2.5"	Hopper or Weaned Mice
Rat Pups	2-3 weeks	21-30 grams	2.5-3.5"	Large Mouse
Weaned Rats	3-4 weeks	31-45 grams	3.5-4.5"	X-Large Mouse
Small Rats	4-6 weeks	46-79 grams	4.5-6"	
Medium Rats	6-8 weeks	80-149 grams	6-8"	
Large Rats	8-10 weeks	150-265 grams	8-9"	1/2 lb Rabbit
X-Large Rats	Adult Rat	266-360 grams	9-11"	1 lb Rabbit
XX-Large Rats	Adult Rat	Over 361 grams	11" +	1.5 lb Rabbit

Contact

Authored by Eric Roscoe. For any additional questions, comments, and/or concerns regarding this animal, group of animals, or this care sheet, please email and contact the Madison Area Herpetological Society at info@madisonherps.org

Disclaimer: Note that the information provided in these, or any care sheets, are not intended to be all-exhaustive, and further research and care should always be sought and provided when it comes to any species one may prospectively be interested in. These care sheets are also not intended to serve as substitutes for professional veterinary medical care and husbandry should any animal require it. Always seek proper and professional veterinary care for any animal should the need arise, and be prepared ahead of time for any and all husbandry costs and expenses that may occur with any animal beyond the initial purchase. Any animal owned is ultimately a matter of personal/individual care and responsibility. MAHS cannot make any claims or guarantees regarding any information in this care sheet therein. This care sheet may be reprinted or redistributed only in its entirely, including any and all MAHS logos and disclaimers.