Tulane National Primate Research Center

Frequently Asked Questions

Director

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The nature of our research and the unusual animals we work with at the TNPRC generally prompt a variety of questions. This brochure provides answers to questions we are asked most frequently on these subjects.

What is a primate?

A primate is the most general category of closely related, intelligent, visually oriented, dexterous mammals possessing hands instead of paws. Primates can be divided into humans, apes, monkeys, and prosimians. These groups can be differentiated on the basis of physical features; for example, number of teeth, brain size relative to body size, overall body size, and presence or lack of a tail. After humans, the smartest and generally largest primates are the apes, e.g. chimpanzees and gorillas. Prosimians, e.g. lemurs, with the smallest relative brain and body size, are the most primitive primate. They are often active at night. All of the nonhuman primates at the TNPRC are monkeys.

Why do we study monkeys at the TNPRC?

As our closest relatives, monkeys can provide the most applicable information toward solving some human health problems. Monkeys are only studied if other species such as rats and mice cannot provide the answers we need. A research project must use as few monkeys as possible to derive the needed information. In addition to biomedical research, we conduct research to help improve the veterinary care of our monkeys and to provide for their psychological health.

What kinds of monkeys live at the TNPRC?

Most of our monkeys are rhesus macaques. We also house closely related species called pigtail macaques and cynomolgus macaques. In addition, we house savannah baboons, mangabeys, green monkeys, patas monkeys, and squirrel monkeys.

What is a rhesus macaque?

Rhesus macaques (*Macaca mulatta*) are the most widespread primates besides humans. While these monkeys generally live in forests, they have adapted to urban conditions as well. Rhesus macaques are found in Afghanistan, India, Nepal, China, Indochina, and Hainan. Adult rhesus macaques weigh from 9 - 22 lbs; males are larger than females. They live in large multi-male/multi-female social groups. The rhesus monkey breeding season occurs in the fall and early winter months, with the birth season following in spring and early summer.

What is a pigtail macaque?

The pigtail macaque (*Macaca nemestrina*), weighing up to 32 lbs, is larger than the rhesus macaque. Males and females differ in size to a greater degree than rhesus macaques. They live in both swampy and dry forests of Myanmar (Burma), Malaysia and Thailand. This species can give birth all year round.

What is a cynomolgus macaque?

The cynomolgus macaque (*Macaca fascicularis*) is the smallest macaque species at the TNPRC, weighing 6 - 18 lbs. Cynomolgus macaques, also called the long-tailed or crab-eating macaque, live in Myanmar, Southern Indochina, the Nicobar Islands, and Indonesia, as well as in the Philippines. They live in much wetter habitats than do rhesus or pigtail macaques, preferring coastal, swamp, and mangrove forests.

What is a baboon?

Baboons (*Papio* species, commonly *Papio anubis*, *Papio cynocephalus*) are African primates that spend more time on the ground than macaques. They live in thorn scrub, savanna, and dry woodland habitats in northern and eastern Africa. They generally climb trees mainly to sleep, and may travel over very long distances each day to feed. Baboons weigh between 32 - 82 lbs.

What is a mangabey?

The TNPRC houses sooty mangabeys (*Cercocebus atys*) and white-crowned managabeys (*Cercocebus lunulatus*). Mangabeys live in the dense tropical forests of sub-Saharan Africa. Mangabeys weigh between 18 - 23 lbs. They live in multi-male/multi-female social groups and have a large home range.

What is a green monkey?

Green monkeys (*Chlorocebus aethiops*) are also called vervets, tantalus, sabeus, and grivet monkeys. Smaller than many of our other primates, they weigh only 7 - 15 lbs. They are found from the woodlands, savannah and high bush of Senegal to the Sudan and Ethiopia and southwards to South Africa. Green monkeys rarely leave the vicinity of trees, which provide some protection from their many predators. This species has a very interesting and elaborate vocal communication system with different warning calls for different types of predators.

What is a patas monkey?

Patas monkeys (*Erythrocebus patas*) are the cheetahs of the primate world and can run as fast as 35 mph. They live in the dry woodlands and savannas of Africa and spend most of their time on the ground. Patas monkeys weight 8 - 28 lbs. Breeding groups often contain only one adult male and many females. Patas monkeys have a short breeding season.

What is a squirrel monkey?

While the other primates at the TNPRC are indigenous to Africa and Asia, the squirrel monkey (*Saimiri sciureus*) is found in Central and South America. They inhabit tropical rainforests. In comparison to other species housed at the TNPRC, a larger proportion of their diet consists of insects . They are one of the smallest primates, weighing only 1 - 3 lbs. They form multi-male/multi-female social groups. Squirrel monkeys breed seasonally.

Why do we have so many different species of monkeys?

The most relevant biomedical model for disease is not always the rhesus macaque. Rhesus macaques are the most widely used primate in biomedical research; however, some diseases, treatments, surgeries, or other interventions are best studied in other species due to differences in susceptibility and response to disease.

From where do we get our monkeys?

We do not remove monkeys from the wild. The TNPRC has a self-sustaining breeding colony of rhesus monkeys. We do obtain some monkeys from captive breeding colonies at other facilities to provide necessary genetic diversity.

Is research that uses monkeys regulated?

Using monkeys in biomedical research is a serious responsibility. There are numerous regulatory safeguards to ensure that all research projects are critically important to human or animal health, that as few monkeys are used as possible, that the least invasive procedures are performed, that the monkeys' duration on the project is as short as possible, that any discomfort or signs of disease are well controlled through excellent clinical care, and that the animal's social and physical environments are as enriched as possible throughout the duration of the study.

How do monkeys live when they are in their natural social groups in the wild?

Most of the species we house at the TNPRC form multi-male/multi-female groups in which there is a strong dominance hierarchy for both males and females. Group sizes vary widely but can contain several hundred individuals in some of the species, e.g. rhesus monkeys and squirrel monkeys. Kinship plays a critical role in the social structure. Social groups are composed of several matrilines or family groups. Each matriline consists of the dominant female, her daughters, granddaughters, and immature male offspring. Each animal has a rank within its matriline, and matrilines are ranked with respect to one another. A female is born into and grows up in the same group, her natal group. Males leave their natal social groups at maturity and may live solitarily or in all-male bachelor groups and remain in them for two or more years before trying to join a new social group as fully adult breeding males.

Do monkeys form friendships? How do they show their friendships?

Monkeys form strong, friendly relationships that are manifested by grooming, by support in conflicts with other monkeys and by spending considerable time around each other during the day and by sleeping next to each other at night. Animals with close bonds often feed close to each other, while other animals will space out widely to avoid aggression. These relationships are often, but not always, found among kin.

What is the best type of outdoor enclosure for monkeys?

Most of our enclosures are 1⁄8 acre to one acre corrals. We are gradually subdividing many of our largest, open-top corrals into 1⁄8 acre corrals with mesh ceilings. This design has several advantages. Since our primates love to climb, a ceiling provides more usable space. In the 1⁄8 and 1⁄4 acre corrals, we are better able to see animals and monitor their health and social relationships, and to identify individual animals. Group sizes are large enough to provide species-appropriate, stimulating social lives. Some of our primates are housed in runs and corn cribs with smaller social groups. Many of these are young animals that will be combined into larger social groups as they mature.

Do our monkeys ever get out of their outdoor enclosures?

As in all captive animal facilities, the rare accident has happened. At the TNPRC and other facilities, monkeys who are inadvertently released generally stay in the immediate vicinity, since that is the location of security, food, and group-mates. Occasionally a monkey will climb high in a tree, in which case it is watched until it comes down and can be captured and returned to the group. The vast majority of monkeys are recaptured within hours.

What kind of food do monkeys eat?

Monkey diets vary with species, the season and even by the sex of the animal. In the wild, the primate species housed at the TNPRC eat primarily fruits and leaves, seeds, tubers, and insects. In a year, a wild monkey may eat over 200 different things. At the TNPRC, monkeys receive nutritionally complete chow biscuits (approximately 45 tons per month) supplemented with a wide variety of fruits, vegetables, and seeds.

How smart are monkeys?

Intelligence is difficult to measure, and there are different aspects to intelligence even among humans. But monkeys have excellent memory, complex vocal systems and show sophisticated social strategies that rival those of any soap opera. Monkeys can be taught to use computers to solve problems using a touch-screen or joystick. This ability is one that makes them suitable subjects in studies on how the brain works and how to treat problems that affect the brain.

Can monkeys see color?

Yes, monkey vision is the same as human vision.

Can monkeys swim?

All monkeys can swim, and some of the species housed at the TNPRC are enthusiastic swimmers. For example, wild cynomolgus macaques may play by dropping out of trees into the water.

Why do some of the monkeys' faces sometimes look swollen?

Rhesus macaques have cheek pouches in which they store food until they find a spot in which to settle down and eat. Some animals appear to have distorted necks because their pouches are full of food!

How long does pregnancy last in a monkey?

There is variation between species, but pregnancies last generally 130 - 170 days. Newborns range in size from 3.5 oz (squirrel monkeys) to 1.5 lbs (baboons).

What happens to baby monkeys if their mothers die?

The TNPRC maintains a nursery where infant monkeys can be cared for by people. In addition to being fed, kept warm and watched carefully to ensure health and development, infant monkeys are housed with each other and/or with adoptive mothers or grandmothers. Particularly patient older monkeys are identified as foster mothers for such infants.

When is a monkey an adult?

Most of the species at the TNPRC are capable of breeding at 3 - 4 years of age but do not become fully grown or socially mature for several years after that.

How long do monkeys live?

In the wild, survival to old age is relatively rare due to disease, injury and predation. In captivity, monkeys live longer. Most of the species housed at the TNPRC commonly live into their late twenties or even thirties.

What do monkeys die of at the TNPRC?

The clinical care and management of our primates is excellent, so deaths due to illness or aggression are kept to a minimum. Some research projects undertaken at the TNPRC involve euthanasia at the end of the study period because examination of tissues or organs is a critical part of understanding the disease process or evaluating preventative or treatment measures. This aspect of disease research is why it is particularly important to study animals since it is rarely possible in people.

How do we keep our monkeys happy?

A socially housed monkey is a happy monkey! We make every effort to house as many of our monkeys as possible in social groups. When monkeys must be housed alone for research or health reasons, extra friendly interaction with people is provided. We also provide for exercise and play, outlets for their curiosity, and activities to occupy their minds and hands. Examples include swings and perches, toys, varied food treats, opportunities to forage, and food puzzle devices.

Why does the TNPRC care about the psychological health of its primates?

First and foremost, it is our obligation to make the lives of animals in our care as pleasant as possible, serving to advance human health. Second, to assure that research findings are as accurate and applicable as possible, monkeys need to be psychologically healthy.

Who ensures that the TNPRC's primates receive the best possible clinical and behavioral care?

The TNPRC is proud of its accreditation with the Association for the Assessment and Accreditation of Laboratory Animal Care (AAALAC), a private, nonprofit organization that promotes the humane treatment of animals in science through voluntary accreditation and assessment programs. Our commitment to responsible animal care and use is demonstrated through our voluntary participation in AAALAC's program whose standards exceed legal requirements. We are also frequently inspected by the United States Department of Agriculture (USDA), the federal agency responsible for enforcing the laws of the Animal Welfare Act. In addition, the Office of Laboratory Animal Welfare (OLAW) has responsibility for providng oversight to those institutions receiving research funding from NIH.

Do monkeys make good pets?

The practice of keeping monkeys as pets is inhumane to the animals and potentially dangerous to people. Monkeys are so highly intelligent, social and emotionally complex animals that their needs cannot be met easily by human owners. Keeping a monkey as a pet can result in permanent emotional and/or physical damage to the animal and in behaviors that are potentially dangerous to humans.

How can I learn more about monkeys?

In addition to books, the Internet is an excellent resource. One of the best places to start is the Primate Information Network (www.primate.wisc.edu/pin/). This site contains a wealth of information and numerous links to other websites.

Do caretakers form a bond with the monkeys?

Yes, they do! And the bonds formed are good for the caretakers, for the monkeys, and for the science. A well-written book that looks at this issue in depth is "The Inevitable Bond: Examining Scientist-Animal Interactions", H. Davis and D. Balfour, 1992, New York: Cambridge University Press.

How is the TNPRC funded?

The TNPRC is part of a unique national network of nonhuman primate research and resource laboratories sponsored by the National Center for Research Resources (NCRR) of the National Institutes of health (NIH). The administrative, operational and core research costs of the TNPRC are supported by a NCRR grant which must be competitively renewed every five years. Core scientific staff seek additional funding for their research activities from other components of the National Institutes of Health (e.g. National Institute of Allergy and Infectious Diseases), from other federal agencies (e.g. Public Health Service) and from private foundations (e.g. Hunter's Hope).

Why can't alternatives such as computer models and cell cultures replace animal research?

Computer modeling, cell cultures and some alternative research methods can be excellent avenues for reducing the number of animals used. These methods are best used to screen substances and to determine their toxicity in early stages of investigation. This reduces the total number of research animals needed. The final test, however, must be done in a whole, living system. The most sophisticated technology available today cannot mimic the complicated interactions among cells, tissues and organs that exist in humans and animals. Scientists must understand these interactions before introducing a new treatment or substance into humans.

What kind of veterinary care is provided to the animals?

The TNPRC has eight veterinarians to provide around–the-clock care for the animals. Several veterinarians are board-certified specialists in laboratory animal medicine. The TNPRC faculty also includes veterinary pathologists and researchers with both PhD and veterinary degrees. Up-to-date clinical facilities and the use of the latest technologies provide for state-of-the-art diagnosis and treatment of diseases and the medical care of the animals. The animals are not only well cared for, but information gathered by veterinarians and researchers can be used to benefit other captive and wild populations of nonhuman primates.

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