



# TAPIR TRACKS



*A Curriculum Guide for Educators*





# Dear Educator,

Welcome to Tapir Tracks! This curriculum was created for classroom teachers and educators at zoos and other nonformal science learning centers to enable you and your students to discover tapirs of the Americas and Asia.

Because tapirs spread seeds from the fruits they eat, these little-known mammals are essential to the health of the forests they inhabit. However, tapir populations are rapidly declining. Loss of their habitat and hunting threaten tapir survival.

An international team of scientists and conservationists works to study wild tapirs, manage the zoo-based population, protect habitat, and educate local communities. We collaborate through the Tapir Specialist Group, of the International Union for Conservation of Nature (IUCN) Species Survival Commission.

This packet includes background information along with lesson plans and activities that can easily be adapted for kindergarten, elementary and secondary school students (grades K-12). An online link is included for you to download images and videos to use in your teaching: <http://tapirs.org/resources/educator-resources>. This toolkit is designed to enable you to meet curriculum requirements in multiple subjects. Students can explore the world's tapirs through science, environmental studies, technology, social studies, geography, the arts and creative writing activities.

We hope that by discovering tapirs through these lessons and engaging activities that students will care and take action to protect tapirs and their natural habitat. Thank you for educating and inspiring the next generation of conservationists!

Sincerely,



Patrícia Medici

*Chair*

*IUCN/SSC Tapir Specialist Group (TSG)*



## Goals

- To provide educators with relevant lesson plans and grade-level-appropriate activities about tapirs that can be integrated into their multidisciplinary curriculum
- To engage students in learning about the world's tapirs and their importance to maintaining healthy tropical forest ecosystems
- To enable students to explore how scientists study tapirs and work to protect their wild habitat
- To encourage students in tapir range countries to take pride in their wildlife heritage and in national efforts to conserve tapirs
- To foster students' empathy for tapirs and inspire them to learn, care and take action to protect these highly threatened species
- To provide ideas and activities for helping tapirs that students and educators can implement

## Student Learning Objectives

Students participating in these lessons and activities will:

- Determine how scientists classify tapirs
- Distinguish among the four species of tapirs
- Use world and regional maps to locate where tapirs live
- Discover how physical characteristics and behaviors help tapirs survive in their environment
- Investigate tapirs' essential role as seed dispersers in tropical forests and how this helps plants reproduce
- Recognize that loss of their habitat and hunting threatens the survival of all tapirs
- Explore how scientists use technology to study tapirs in the wild and how field research yields valuable information
- Learn what conservationists are doing to protect tapirs and their wild habitat, and how students can help

### Through extension activities, students will:

- Express what they have learned and how they feel about tapirs through poetry, writing and arts activities
- Share what they have learned with schoolmates, family, friends and their community through poster art, presentations, skits, video or social media to inspire others to care about saving tapirs

# Outcomes

Through their participation in the activities contained in this curriculum students will be able to:  
(grade-level appropriate)

## Know


- Identify the tapir as a hoofed mammal
- Distinguish four species of tapirs
- Name the continents on which tapirs live
- Identify on a map the regions where their local tapirs live
- Identify three adaptations that help tapirs survive in their environment
- Explain that tapirs are important to their environment because they spread seeds
- Recognize what scientists learn by studying wild tapirs
- Describe why tapirs are endangered or vulnerable to extinction
- Name three ways that people can help protect wild tapirs

## Feel

- Impressed by tapirs' amazing adaptations
- For students in tapir range countries:  
Pride in tapirs as national wildlife treasures
- Inspired to take action to protect wild tapirs

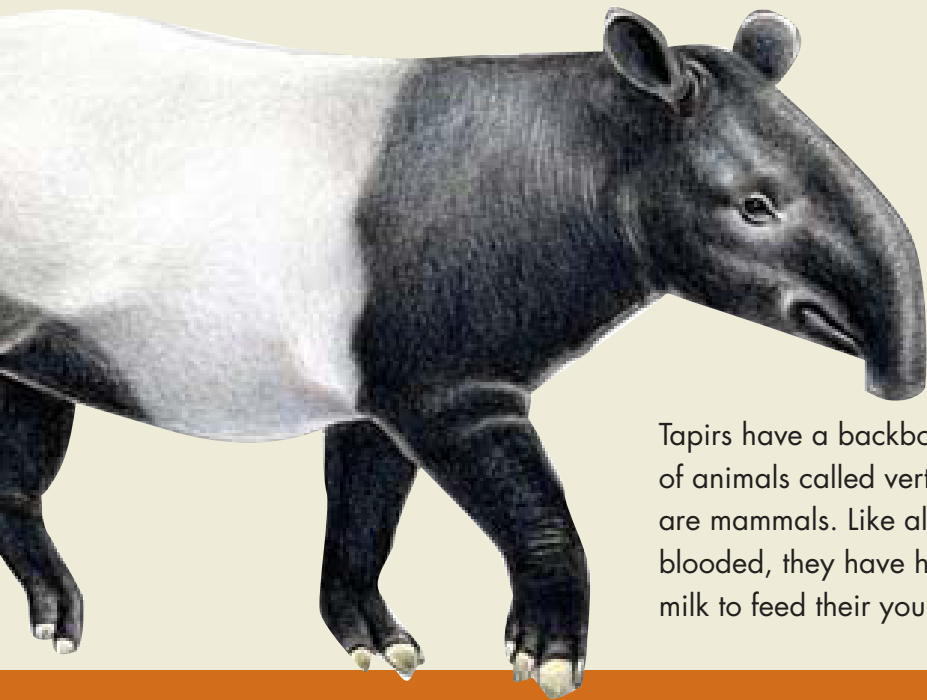
## Do

- Share what they have learned about tapirs with others
- Support conservation of tapirs and tropical forests
- Pledge to take environmentally responsible actions to protect tropical forests, including recycling and reducing energy use to lessen the effects of climate change



**Fun Fact:**  
Swimming tapirs  
can use their snout  
like a snorkel!

# Getting to Know Tapirs



## What Kind of Animal is That?!

Tapirs have a backbone, which makes them part of the group of animals called vertebrates. Within that larger group, tapirs are mammals. Like all other mammals, tapirs are warm-blooded, they have hair on their body, and females produce milk to feed their young.

Body shape makes tapirs look like large pigs. Their long snout reminds some people of anteaters. Yet neither of these animals is closely related to tapirs. Feet provided the clue for scientists to understand how to classify these animals. Tapirs walk on the end bones of their toes. Toes are protected by a large nail that forms a hoof. Like other mammals that have hoofed toes, including the horse, zebra, giraffe, goat and llama, tapirs are **ungulates**\*. Tapirs have four toes on their front feet (the fourth toe is smaller) and three toes on their back feet. This identifies tapirs as part of the Order Perissodactyla, ungulates with an odd number of toes.



*\*words in bold are defined in the Glossary on page 74*

**ACTIVITY**  
**What is a Tapir?**  
Page 36



**Close relatives:**

Scientists have determined that tapirs are most closely related to early horses and living rhinoceroses.



## Living Fossils

Fossil remnants show that tapirs evolved about 50 million years ago in North America during the Eocene epoch. Forty to 50 million years ago, these early tapirs migrated to Asia (including China). Tapirs first appeared in South America between two and seven million years ago. This migration from north to south occurred two to three million years ago after the land bridge, known as the Isthmus of Panama, emerged from the ocean and joined the two New World continents. Because they have survived several periods of animal extinction and have not changed much in form, tapirs are sometimes called 'living fossils.'

## Where in the World?

There are four species of tapirs. Three live in the Americas and one occurs in Southeast Asia:



1. **Baird's tapir** (*Tapirus bairdii*) lives in tropical forests and grasslands of Mexico, Central America, and northern Colombia
2. **Lowland tapir** (*Tapirus terrestris*) also known as the Brazilian tapir, lives in the rain forests of South America
3. **Mountain tapir** (*Tapirus pinchaque*) lives in the cloud forests and high altitude grasslands of the northern Andes in Ecuador, Colombia and northern Peru
4. **Malayan tapir** (*Tapirus indicus*) lives in the rain forests of Southeast Asia in Malaysia, Myanmar, Thailand and on the island of Sumatra in Indonesia

In 2013, scientists discovered what they believed is a new tapir species, the Kabomani tapir, in the western Amazon of Brazil and Colombia. With insufficient information to determine its classification, this animal is not recognized by the IUCN as a distinct species. More research is needed to make this determination.



### Tapir Habitat

Tapirs inhabit forests or grassy areas where they can rest and take shelter in vegetation. They prefer areas near water, where they cool off and feed on aquatic plants and fruit from palm trees in gallery forests.

**ACTIVITY**  
Where Tapirs Live  
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**ACTIVITY**  
Mix and Match Tapirs  
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## Largest and Smallest Tapirs

**Length:** All tapir species are about two meters (7 ft.) long.

**Height:** They stand one meter (3 ft.) high at the shoulder.

**Weight:** Weight varies among species—females are somewhat larger than males.

The Malayan tapir is the largest of the four species. Males weigh between 295 and 385 kg (650-849 lbs.); females weigh 340-430 kg (750-948 lbs.). The mountain tapir is the smallest: males weigh 136-227 kg (300-500 lbs.); females reach 160-250 kg (353-551 lbs.).



### Tapir Diet

Tapirs feed exclusively on fruits, leaves and other plant parts. These herbivores use their snout to “nose around” for fallen fruits or those dropped from above by monkeys. Tapirs also browse on leaves from trees overhead. Plant eaters must eat a large amount of food to get enough of the nutrients they need. Tapirs eat about 40 kg (85 lbs.) of food each night! They supplement their diet by visiting salt licks to gain essential minerals.

### Predators

Jaguars and pumas hunt lowland tapirs and Baird’s tapirs. In the Andes mountains, pumas (and sometimes spectacled bears) prey on mountain tapirs. Leopards feed on Malayan tapirs in Southeast Asia. Tigers on the island of Sumatra in Indonesia also prey on tapirs.



### All in a Name

The name tapir and the Latin genus name *Tapirus*, originated from *tapyra*, the name given to the lowland tapir by the Tupi tribal people of the Amazon. Malayan tapirs are known in Thailand as “P’som-sett,” which translates as “mixture is finished.” This refers to a local belief that tapirs were created from parts of other animals.

**ACTIVITY**  
*What’s for lunch?*  
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# Amazing Adaptations!

Physical characteristics and behaviors help tapirs to survive in their environment:

**Body shape:** Notice how their large, stocky form is narrower near the head and wider at the rounded rear. This barrel-shaped body acts like a bulldozer as tapirs plunge through dense forest undergrowth on their short legs.

**Thick skin:** Thick hide protects tapirs from injury by scraping or thorny branches. Tough skin on their neck helps defend tapirs from predator bites.



**Grasping snout:** The muscles of their nose and upper lip form a snout used to sniff and smell. Tapirs can move their short, flexible snout (also known as a proboscis) in all directions. They use this prehensile (grasping) snout to reach branches, strip leaves and pick fruits.

**Flexible feet:** Their feet are ideal for walking on muddy stream bottoms or scrambling up slippery river banks. Tapirs can spread their toes to increase traction on slippery mud or soft, soggy soil. A large, flexible pad cushions their feet. Tapirs have three toes on their back feet and four toes on their front feet. The fourth toe provides extra support to help the tapir walk on soft ground.

**ACTIVITY**  
**Flexible Feet**  
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**ACTIVITY**  
Amazing Adaptations!  
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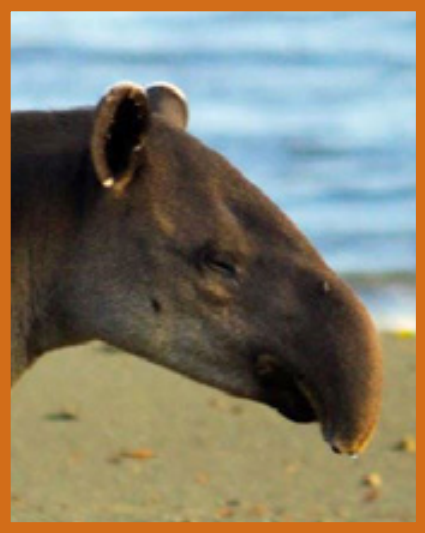


**Snorkel snout:** The snout also works like a snorkel for tapirs to breathe while they are submerged in water. They can close their nostrils to prevent water from entering when they dive.

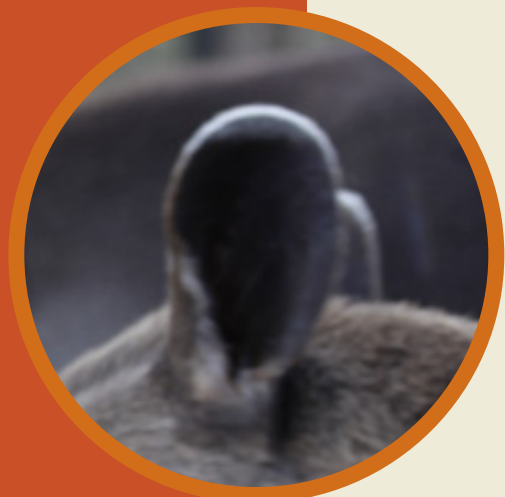


**Vegetarian Teeth:** Tapirs use their chisel-shaped incisor teeth (upper and lower front teeth) for cutting plants. Ridges on their low-crowned cheekteeth act like scissors, shearing leaves, twigs, vines and fruit.

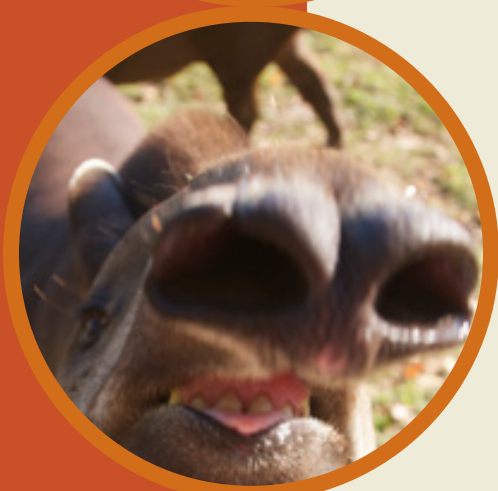
**Skull:** Notice the prominent ridge of bone (sagittal crest) on the top of the tapir's long, narrow skull. This is where jaw muscles attach. Tapirs use strong jaws and teeth to snap and bite as they fend off large predators.



## Tapir Senses



**Hearing:** Tapirs have short, white-tipped ears, and sensitive hearing



**Smell:** Tapirs rely on their keen sense of smell, which is useful for animals that are active in low light. Tapirs may raise their snout, show their teeth and inhale to waft scent over the Jacobson's organ on the roof of their mouth. This fine-tunes their sense of smell. Male tapirs use this to detect scents of other males, or of females that are ready to mate.



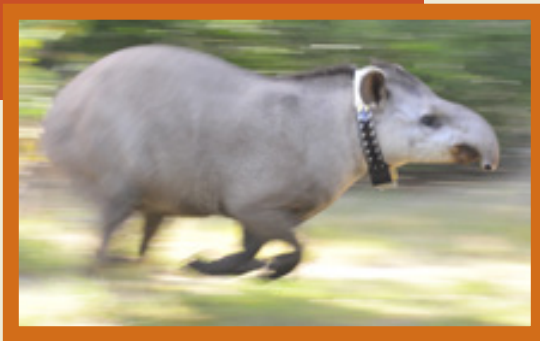
**Vision:** Tapirs have limited vision. Small eyes located on the sides of their head provide peripheral (side) vision to allow tapirs to see danger around them.

**ACTIVITY**  
*See Like a Tapir*  
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## Tapir Behaviors

### Evading predators:

For their large, bulky size, tapirs are surprisingly swift and agile runners. When threatened, they may bolt toward water to escape.



**Night and day:** Tapirs may be most active at dawn and dusk (crepuscular) or at night (nocturnal). They spend most of their waking hours searching for food. During the heat of the day and in the middle of the night, these shy animals rest in a secluded spot, hidden from predators. The mountain tapir is more active during daytime hours than are other tapir species.

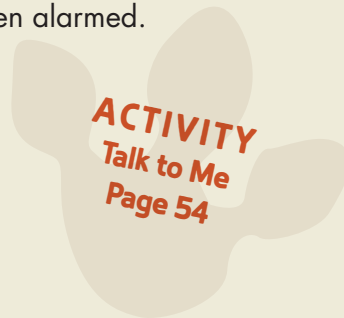
**Water refuge:** Tapirs frequently cool off in water. When threatened, they may retreat to water to escape a predator. These excellent swimmers usually hold their head and snout above water. They walk along river bottoms and may submerge to allow small fish to remove skin parasites. When they remain underwater, tapirs hold their snout above the surface, using it like a snorkel to breathe. Baby tapirs can swim when they are a few days old.



**Mud bath:** Tapirs beat the heat by bathing in water, and also keep cool by wallowing in mud. This mud bath protects their skin from ticks, insects and other parasites.

## Tapir Talk:

- **Scent messages** help solitary tapirs communicate with others in their neighborhood. As they move through their home range, tapirs mark their territory by spraying urine on plants. Their keen sense of smell enables tapirs to recognize chemical signals left by others.
- **Sounds:** Tapirs also “talk” to each other with sounds. A low-frequency squeal may be a contact call. Males whistle or make a huffing sound when courting a female. Sounds resembling a repeated hiccup may indicate distress (such as a mother separated from her baby). Young tapirs make high-pitched squeaks when alarmed.



## Tapir Families

**Social organization:** Tapirs are usually solitary except when mating and for the relationship between a mother and her young. Adults travel through a home range of up to two to five square kilometers (.7-2 sq. miles). Neighboring tapirs may have overlapping home ranges. Small groups of adults or juveniles sometimes forage together or gather at mineral licks.

**Reproduction:** Tapirs become sexually mature at three to five years of age. Pairs mate several times, in water or on land. Thirteen or fourteen months after mating, the female gives birth (while she is standing) to a single calf that weighs 7-11 kg (15-25 lbs.). Twins are rare. The calf’s eyes are open at birth, and it can stand within two hours. Tapirs are gentle animals, but mothers aggressively defend their young from predators.



## Growing Up

**Hide me!** All tapirs are born with yellow or white striped and spotted coats. They look like a watermelon with legs! When mothers leave to forage for food, they hide their baby in vegetation. Its coat pattern camouflages the young tapir in the dappled light of the forest.

**Venturing out:** At a few weeks of age, a young tapir begins to follow its mother. The baby nibbles the leaves and fruits she eats, yet its primary nourishment comes from its mother’s milk.

**Changing color:** When it is three months old, the calf begins to lose its patterned coat color. At six months of age, it resembles the adult.

**Weaning:** The calf continues to suckle for a year or longer, until the mother no longer provides milk or she gives birth to her next calf.

**Leaving home:** Young tapirs stay with their mother for 12-18 months.



## Forest Gardeners

Tapirs roam through different types of forest habitat as they forage for food throughout their large home range. Half of their daily diet is fruit. These herbivores ingest the seeds as they eat huge amounts of several kinds of fruits. As tapirs walk a long distance, they pass the seeds as they defecate. Droppings provide a packet of fertilizer, helping seeds to germinate.

These “gardeners of the forest” have an important ecological role as seed dispersers. Tapirs help plants reproduce by spreading seeds to new areas. This increases the forests’ biological diversity and provides food for many other animals. Tapirs play a critical role in maintaining the functioning of their ecosystem. These herbivores are essential to the health of forests! Tapir scientists refer to these animals as “**ecosystem engineers**.” Protecting tapir habitat also protects many other species that live there. For this reason, tapirs are known as “**keystone species**.” The decline of tapir populations can seriously impact the region’s **biodiversity**.



**ACTIVITY**  
Forest Gardeners  
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## Tapirs in Trouble

All four species of tapirs are threatened with **extinction**. Because of the importance of tapirs as seed dispersers, their population decline endangers the health of forests as well as all the other animals that depend on these habitats. What is harming tapirs?

- **Habitat loss and fragmentation:** As human populations expand, more wild land is cleared for agriculture, livestock ranching and logging. Building large dams and constructing roads and highways destroys habitat and results in disconnected fragments of habitat (**fragmentation**). These forest remnants are too small to support tapirs’ need for a large home range. Habitat loss limits their food supply.
- **Hunting:** Tapirs are hunted for their meat and hide. Poachers in the Andes mountains hunt tapirs and use their tough skin to make backpacks, ropes, baskets, bed covers and carpets. Tapir skin and feet are sold for medicinal purposes.
- **Road kill:** Vehicles can strike and kill tapirs as they cross roads built through wild habitat.
- **Pesticide contamination:** Runoff from chemical pesticides pollutes waterways where tapirs cool off and feed.

**Tapirs have a low reproductive rate.** These large mammals have a 13-14-month **gestation** period until their single calf is born. Mothers care for their calf for another 12-18 months before giving birth again. Because they reproduce so slowly, tapir populations cannot recover quickly when their numbers are reduced by hunting. When loss of their habitat isolates them in patches of forest without connecting corridors, tapirs cannot find mates in other areas. This reduces the genetic diversity needed to maintain healthy populations.

# Studying Wild Tapirs

## Tapir Technology

Field scientists who study the four species of tapir in their wild habitats share a common challenge—these shy and often night-active animals are hard to find!

Tapir researchers rely on the latest technology to track tapirs and collect data on these elusive animals.

**Camera traps:** Scientists install cameras (disguised in sturdy, protective boxes) along animal pathways. Camera traps are equipped with motion detectors. Newer technology uses a signal sent when an animal movement's breaks an infrared beam between a transmitter and a receiver. The animal's motion signals the camera to snap an image. Images are time and date stamped, which allows researchers to track tapir movements. This technology allows researchers to observe animals in remote locations and at night. Identifying individual animals provides important information on population sizes, social interactions and reproduction.

**Radio collars:** Attaching a radio collar to a tapir enables field researchers to track an animal's movement over time. A VHF (very high frequency) collar is equipped with a radio transmitter and a battery. The transmitter emits a signal at a specific frequency, which researchers track using an antenna. A GPS (Global Positioning System) collar uses a satellite transmitter. Signals record an animal's exact position and store the readings. Field researchers can then download these data remotely without tracking in the field.

## Tapir Radio Collaring

In order to attach a radio collar, researchers first trap a tapir. All team members have specialized training and expertise. Each person has a job to do to help ensure the animal's safety, health and minimize any stress. The team may use a box trap, or dig a pitfall trap and cover it in forest debris. When a tapir is caught, team members quickly anesthetize the animal. While the tapir sleeps, researchers conduct a thorough health check (including an eye exam and dental checkup). Team members may draw blood, and collect hair, feces, urine, milk and skin samples for analysis. Samples are used to study the animal's DNA, hormone levels, nutrition, parasites, and to monitor for diseases. The team works efficiently to attach a radio collar, and they monitor the tapir as it awakens. If a pitfall trap is used, it is filled in to enable the animal to walk out easily. The tapir emerges with its new collar, slightly groggy, but unaffected by its experience.



**ACTIVITY**  
Studying Wild Tapirs  
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# Saving Tapirs

## Tapir Specialist Group

More than 140 people from 28 countries are members of the Tapir Specialist Group, part of the International Union for the Conservation of Nature (IUCN) Species Survival Commission (SSC). Members are field biologists, environmental educators, veterinarians, representatives of governmental agencies and non-governmental organizations (NGOs), zoo personnel, university professors and students, all of whom volunteer their time. They share information, conduct strategic action planning for tapir conservation in range countries, and collaborate on tapir research and conservation programs. Members conduct education outreach to demonstrate the importance of tapirs to local ecosystems.

## Zoo Management

Zoos have an important role to play in tapir conservation. Studying tapirs in zoos provides information that is beneficial to zoo animal care and welfare. Zoo research also helps field biologists who study these secretive animals in their wild habitats. One zoo representative is selected to manage a species “studbook,” and keeps detailed records on each animal. Zoos exchange information on individual animals. The Association of Zoos and Aquariums (AZA) and European Association of Zoos and Aquariums (EAZA) coordinate zoo conservation plans for tapir species. Data are used to make breeding recommendations so that zoos can maintain genetically healthy populations of tapirs.

## Protecting Wild Tapirs

Saving wild habitat is essential to protecting tapir species. Tapir conservationists work with local and regional governments to secure designation and protection of reserves to protect tapirs. Equally important is establishing “corridors” of protected land that link protected areas so that tapirs do not become genetically isolated in fragments of habitat. Because animals cross political borders, this work may include international cooperation.

Conservationist activism has influenced governments to ban hunting of tapirs in some areas. However, legislation must be enforced to be effective. Field scientists work with government officials and educate people in local communities to reduce **poaching**.

Tapir conservationists work closely with local communities to educate children and adults about the importance of tapirs to their environment. They encourage the adoption of environmentally-friendly agricultural and plant harvesting practices, agroforestry and sustainable grazing. These practices are valuable to people and protect wildlife. Only with the support of local communities can lasting conservation solutions be built.



**ACTIVITY**  
Protecting Tapirs  
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## You Can Help Tapirs

Tapirs are in danger and they need your help! No matter where in the world you live, you can take action for tapirs, and every individual action makes a difference. Together, our actions will protect a future for wild tapirs. Here is how you can help:

- Learn all you can about tapirs and spread the word so that others will know how important tapirs are, too.
- If you live in a tapir range country near tapir habitat:
  - Slow down when you drive, especially at dawn, dusk or night when tapirs are active. Many tapirs are killed by vehicles as these animals cross roads. Share this message with your family and friends.
  - Do not buy meat or products made from tapirs, and tell others to avoid tapir products.
  - If you live near a park where tapirs live, visit that area to help to support the economy of local communities.
- Write a letter to your government officials to urge them to support legislation that will fund conservation of tapir habitat.
- Write a letter to international conservation organizations to ask them to make funding tapir conservation a priority.
- Your class can support tapir research and conservation by making a donation to the Tapir Specialist Group Conservation Fund at the Houston Zoo: <https://www.houstonzoo.org>
- If you live near a zoo that has tapirs, support your zoo's tapir conservation efforts.
- Help protect the tapir's tropical forest home:
  - Recycle paper, aluminum cans and everything you can to reduce the need for taking natural resources from tapir habitat.
  - If you purchase tropical wood products, buy only those certified as grown and harvested sustainably.
  - Reduce your use of energy to lessen the effects of climate change: Turn off lights and electronic equipment when not in use. Walk or ride a bicycle, and encourage your family to drive less. Adjust the heating and cooling system thermostat in your home.



No matter where in the world you live, you can take action for tapirs, and every individual action makes a difference.



# Meet the Tapir Scientists



## Patrícia Medici, *Lowland Tapir*

Conservation biologist Dr. Patrícia Medici began her career studying primates in the Atlantic Forest of her native Brazil. During her field

work, she glimpsed a lowland tapir moving gracefully through the brush. This chance encounter piqued her interest in tapirs, and inspired her life's work and passion to study these amazing animals. When Pati Medici first began studying lowland tapirs in 1996, little was known about them. Her research became the first long-term study of these "gardeners of the forest" and continues today in expanded areas of Brazil.

**Education:** Ph.D., Biodiversity Management, M.Sc., Wildlife Ecology, Conservation and Management

**Tapir Conservation Work:** Coordinator, Lowland Tapir Conservation Initiative (LTCI); Researcher/Founder, IPÊ - Instituto de Pesquisas Ecológicas (Institute for Ecological Research), Brazil; Chair, IUCN/SSC Tapir Specialist Group (TSG)

**Lowland Tapir Conservation Threats:** The major threats to this species are habitat loss and fragmentation due to **deforestation** and large-scale agriculture; hunting for their meat for subsistence and commercial sale in city markets; and competition with domestic livestock. The lowland tapir is legally protected in many of its range countries; however, hunting regulations are not regularly enforced. The lowland tapir is locally common in some areas yet populations are declining. The lowland tapir is designated as a "Vulnerable" species.

**Tapir Field Studies:** Pati Medici and her field team gather a tremendous amount of information through radio-collaring tapirs. They use a box trap to catch a tapir, anesthetize the animal, and attach the collar before releasing the tapir. Radio-tagging (using VHF/GPS telemetry), Geographical Information System (GIS) data, and satellite imagery provide valuable data. Analysis of results allows researchers to understand how tapirs use their environment, their activity patterns, and how they interact with other tapirs. Team members collect tapir droppings and analyze their contents to learn what tapirs eat. They use telemetry to estimate tapir population density. Images from camera traps reveal information about tapir social organization and reproduction. The team collects blood, hair and tiny skin tissue samples to study tapir genetics.

**Tapir Conservation:** The Lowland Tapir Conservation Action Plan was published by the Tapir Specialist Group in 2007. In 2008, Pati Medici established a nation-wide Lowland Tapir Conservation Initiative (LTCI). This program uses research data collected from studying wild tapirs to document the need for



*Lowland tapirs live throughout most of the tropical regions east of the Andes mountains in northern and central South America.*

habitat conservation and protection. Lowland tapirs are found in four Brazilian **biomes**: the Atlantic Forest, **Pantanal**, **Cerrado** and the Amazon. Pati Medici and her team expanded their work to study lowland tapirs in the Pantanal. This region is the world's largest continuous freshwater flood plain, which has a large population of lowland tapirs.

LTCI uses tapirs as ambassadors to promote habitat conservation efforts. Education and local community participation are essential to habitat conservation efforts that will influence governmental policy-making. LTCI distributes educational materials, gives presentations to landowners and ranchers, presents educational activities for children in rural schools, and trains teachers. Internship opportunities and short courses help train the next generation of field conservationists. The team's field research informs

specific conservation recommendations. These will benefit tapirs, other wildlife and the whole Pantanal biome. The team has recently begun working in the Cerrado, a vast, tropical savanna (grasslands).

"Minha Amiga é uma Anta" (My Friend is a Tapir) is a campaign for children and teenagers. LTCI uses a brochure, website, social media, and the My Friend is a Tapir club as educational tools. The Brazilian Association of Zoos and Aquariums (SZB) adopted this educational campaign for Brazilian zoos to feature tapir conservation issues in their educational programs.

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## Christopher Jordan, *Baird's Tapir*

Dr. Chris Jordan first became interested in the mysterious Baird's tapir while studying the region's biodiversity. His research later

revealed that Nicaragua's Caribbean coast is a "hotspot," an area with one of the largest populations of Baird's tapir.

**Education:** Ph.D. in Fisheries and Wildlife, B.S. in Wildlife Conservation, B.A. in Spanish and Latin American studies

**Tapir Conservation Work:** Nicaragua Programs Director for the Global Wildlife Conservation foundation; coordinates **Proyecto Tapir Nicaragua**, a Baird's tapir research and conservation program; TSG Country Coordinator for Nicaragua

**Baird's Tapir Conservation Threats:** Baird's tapir is an endangered species due to loss and fragmentation of its habitat, and hunting. Fewer than 5,500 remain. Indigenous people and those of afro-descent have traditionally lived in Caribbean coastal forests. They hunted tapirs, yet at a level that allowed the population to survive. The area has now become overcrowded with settlers who come to clear the forest illegally for large-scale agriculture, cattle ranching and timber harvesting. Tapirs are now hunted at an unsustainable level. Hunting tapirs is banned by government legislation; however, laws are infrequently enforced. New highways and oil-palm plantations divide the corridor of habitat that once linked the Bosawás Biosphere Reserve in northern Nicaragua and the Indio-Maíz Biosphere Reserve in the south. Tapirs cannot move between reserves to find mates, which results in genetically isolated populations.

**Tapir Field Studies:** Chris Jordan and his team use motion-sensor camera traps to study the movements of nocturnal tapirs in the Indio-Maíz Biosphere Reserve. They trap a wild tapir, monitor the animal's health, and attach a GPS-equipped collar before releasing it. The team then tracks each collared tapir's movements to learn how tapirs survive in land that has been cleared for agriculture.

**Tapir Conservation:** Proyecto Tapir Nicaragua is a collaborative effort with many partners: Global Wildlife Conservation (GWC), the Nicaraguan National Zoo, the Caribbean Coast Regional Autonomous University, Michigan State University, and the Foundation for the Autonomy and Development of the Atlantic Coast of Nicaragua. The team works to protect Baird's tapir and educate local people about the importance of conserving these animals. Community-based conservation that benefits local people is essential to the program's success:



*Baird's tapirs live from Mexico south through Central America and Colombia*

**Forest Rangers:** Chris Jordan and GWC worked with the conservation organization Panthera and local partners to establish a program of Forest Rangers in the Indio-Maiz Reserve. Rangers monitor environmental threats to help ensure the survival of Baird's tapirs and jaguars. Having Forest Rangers report environmental threats to authorities gives a voice to local people in their quest to stop environmental destruction in their area. This helps them to preserve their culture and traditions. Future plans include training additional rangers and working to improve environmental law enforcement.

**Outreach and Environmental Education:** Activities focus on programs for youth in cattle-ranching communities along the borders of Indio-Maíz. These areas are the primary sources of poachers and illegal migrants in the area. Through environmental education, GWC hopes to increase Nicaraguans' pride that they have a globally important population of Baird's tapir in their country.

**Tapir Rescue Center:** Nicaragua's military is a partner in tapir conservation. The Army's Ecological Battalion has rescued baby tapirs captured in the jungle for the illegal pet trade. Proyecto Tapir Nicaragua is launching an effort to introduce zoo-born tapirs to natural habitat areas. Plans are underway to build Nicaragua's first Tapir Rescue and Rehabilitation Center in Nicaragua's Wawashang Reserve.



## Diego Lizcano, *Mountain Tapir*

Colombian scientist Dr. Diego Lizcano became interested in ecology and zoology as an undergraduate student, when he first studied the mountain tapir in the Central Andes mountains of Colombia. He continued his doctoral research in the tropical Andes on ecological relationships of five large mammal species, including his favorite, the mountain tapir. Diego Lizcano's current research focuses on endangered species ecology, with an emphasis on tapirs. He is also an avid photographer.

**Education:** Ph.D. in Biodiversity Management, B.Sc. Biology 1990

**Tapir Conservation Work:** Director of the Department of Biology and Chemistry, Pamplona University, Colombia; Visiting Scientist, Tropical Ecology Assessment and Monitoring (TEAM) Network; Biodiversity Specialist, The Nature Conservancy

**Mountain Tapir Conservation Threats:** Hunting was once the primary threat to mountain tapir. In some areas, hunting is no longer a major threat due to local regulations and increased awareness of this rare animal's conservation status. Now, armed conflict (guerilla warfare and military presence) and habitat loss threaten the survival of this endangered species. The effect of climate change is unknown, but has the potential to decrease the amount of tapir habitat. Human population growth in the Andes increases the need for land and results in loss of wildlife habitat. Poppy growing and spraying herbicides for its removal degrade or fragment habitat, as do ranching and agriculture. In Colombia and Peru, illegal mining (which pollutes water sources) affects mountain tapirs. Road building in protected areas, hydroelectric dam construction, and petroleum exploration destroy habitat. Peru lacks protected areas that are large enough to support tapir populations. Environmental policies are poorly enforced. Livestock can transmit infectious diseases to tapirs. This species has been hunted for its meat and hide. Body parts are used in local folk medicines. Tapirs are struck and killed by speeding vehicles as the animals cross roads. Exact numbers of mountain tapirs remaining are not known; the estimated population (as of 2008) is more than 2,500 individuals. Numbers are decreasing.

**Tapir Field Studies:** Diego Lizcano and his team have studied mountain tapirs in the Central Andes Los Nevados National Park and Ucumari Regional Park in Risaralda State, Colombia. Terrain in these high mountain forests includes rocky cliffs and deep valleys, making tracking tapir movements especially difficult. The team uses trained dogs to capture a mountain tapir and then darts the animal with an anesthetic. Each animal is checked for parasites and examined to determine its age and gender. A Global Positioning System (GPS) collar is attached





*Mountain tapirs live in high-altitude forests in the Andes mountains of Colombia, Ecuador and northeastern Peru. They are the smallest of the tapir species and have a woolly coat.*

before the tapir fully awakens. Data from the GPS collars have enabled the team to track animals remotely and calculate home ranges by season. The focus of new field work is mapping remaining mountain tapir habitat in Colombia. The team uses camera traps to survey large areas of potential mountain tapir habitat. Through observations and interviews with local people, they are collecting information to assess threats to mountain tapirs.

**Tapir Conservation:** Diego Lizcano and his team evaluate threats and their effect on mountain tapirs in Colombia. They will share the field research results, satellite photos and global climate data used in their assessment through an interactive web accessible to all. The team is working to recommend

strategies that can ensure the survival of Colombia's mountain tapirs, and to train the country's future mountain tapir conservation leaders.

In Colombia, Complejo Volcanico Doña Juana Cascabel National Park is a new protected area in the mountain tapir's range. The mountain tapir is the focal species for conservation in Los Nevados, Las Hermosas, Nevado del Huila and Puracé National Parks. The National Plan for the tapir conservation published by the Ministry of Environment has become the guide for tapir conservation actions in Colombia.



## **Carl Traeholt, Malayan Tapir**

Dr. Carl Traeholt was born in Malaysia and moved with his family to Denmark as a young child. He has lived and worked on conservation projects in many parts of the world. In Malaysia, Indonesia, Cambodia, Peru and Zambia, Carl Traeholt's work has focused on wildlife research, biodiversity conservation and organizational capacity building.

**Education:** Ph.D. in Population Ecology;  
MSc in Conservation Biology

**Tapir Conservation Work:** Program Director of Copenhagen Zoo's Southeast Asia Conservation Program/Malay Tapir Conservation Project; Visiting Scientist, University of Technology, Centre for Biodiversity Conservation; Malaysian Nature Society's Conservation Advisory Committee; TSG Malayan Tapir Coordinator

**Malayan Tapir Conservation Threats:** Although tapirs are protected nationally in Malaysia, habitat loss and fragmentation in Southeast Asia threatens their survival. They are also hunted and ensnared in traps set for other animals. Tapirs are hit by vehicles as they cross roads at night in search of mineral licks. Large tracts of land in Malaysia have been deforested, leaving only small pockets of habitat for tapirs.

**Tapir Field Studies:** Little was known about the Malayan tapir's behavior, range and habitat needs when Carl Traeholt began his research. His team used camera traps (motion-activated cameras) to record images of the elusive, nocturnal tapirs at Krau Wildlife Reserve in the state of Pahang Darul Makmur. These enabled scientists to recognize individuals by the marks on the animals' necks. They determined that the population size was much smaller than anticipated: only 30-50 animals. The entire population in Malaysia is now approximately 1,500-2,000.

Carl Traeholt and his team then began trapping tapirs for their behavioral ecology research. They tag each tapir with a microchip for identification, and attach a GPS radio collar. Field scientists then use radio telemetry to document each animal's movements. Using this technique and observing tapir tracks, they have learned about tapir behavior and extensive home range needs.

**Tapir Conservation:** The Malaysian Department of Wildlife and National Parks (known as Perhilitan) began working with the Copenhagen Zoo in 1998 to protect tapirs in Peninsular Malaysia. Together in 2002, they established the Malay Tapir Conservation Project to study the ecology of these animals. Carl Traeholt oversees projects at Krau Wildlife Reserve and Taman Negara, National Park, where tapir populations are concentrated.



*Malayan tapirs live in Peninsular Malaysia, Myanmar, Thailand and Indonesia (Sumatra). This endangered species is the largest of the world's four tapir species and the only tapir native to Asia.*

The Malay Tapir Conservation Centre is situated within Sungai Dusun Wildlife Reserve in the northern part of Selangor state. Managed by the Malaysia's Department of Wildlife and National Parks, the Centre provides a home for orphaned baby tapirs in the hope of rehabilitating and releasing them. The Centre is also a tapir breeding facility. From its observation platform, scientists study the tapirs' behavior.

Carl Traeholt and his team are now studying how tapirs adapt to their increasingly fragmented habitat. Protecting wild land and enforcing anti-poaching laws are essential to conserving the Malayan tapir and many other species that share its habitat.

In 2016, Copenhagen Zoo and Department of Wildlife and National Parks Jabatan Perhilitan Semenanjung Malaysia signed a Memorandum of Understanding to strengthen their collaboration on wildlife protection. This tapir conservation program will support wildlife experts' continued studies and the development of a Malayan Tapir Conservation Action Plan. Carl Traeholt plans to expand activities to include conservation intervention in oil palm plantations.

# Meet the Tapirs: Tapirs of the Americas



**Baird's Tapir** (*Tapirus bairdii*),  
also known as the Central American tapir

**Status:** **Endangered**

**Other Names:** Baird's tapir is known as danta (Spanish), mountain cow (Belize), and macho de monte (Colombia and Costa Rica).

**Distinguishing Features:** The adult Baird's tapir has a brown-gray or dark reddish-brown coat with short, bristly hair. Its chest, throat and face have cream-colored fur, which also fringes its small ears. Notice the dark spot on each cheek below its eyes.

**Size:** At 1.5 meters (5 ft.) in length and weighing 250 kg (550 lbs.), Baird's tapir is the largest of the three tapir species in the Americas, and the largest mammal in the neotropics.

**Diet:** Baird's tapir eats twigs, **understory** plants, fruits and leaves from the forest floor, and aquatic vegetation. It snaps small saplings to reach tall plants.



**Range:** Baird’s tapir is found from Oaxaca Province in Mexico through Central America (Belize, Costa Rica, Guatemala, Honduras, Nicaragua and Panama) to the western side of the Andean mountain range in northern Colombia (the Darien). It is no longer found in El Salvador.

**Habitat:** This tapir lives in forests near ponds and streams. It inhabits tropical rain forests, lower **montane** (mountain) forests, **deciduous** forests, flooded grasslands and marsh areas from sea level to 3,620 meters (11,877 ft.)

**Activity:** Primarily active at dusk and throughout the night, Baird’s tapir rests in thick vegetation during daylight hours and may rest and cool down in water.

**Home Range:** Tapirs share their home range with other tapirs, rather than maintaining an exclusive territory. Males appear to have smaller home ranges of about one square kilometer (.4 sq. mi.); females range much more widely.

**Scent Marking:** Tapirs spray their urine on trees and other vegetation. Baird’s tapir frequently defecates in water as well as at “dump sites” on land. Scientists believe that tapirs use these scent messages to mark their home range.

**Social Group:** Primarily solitary except for mating and the mother-young relationship, Baird’s tapir forms occasional associations with other tapirs. Individuals have been observed feeding together.

**Predators:** Jaguars and pumas prey on Baird’s tapir.

**Conservation Threats:** Populations of Baird’s tapir are rapidly declining. Scientists estimate that 5,500 remain in the wild. Threats to mountain tapir survival include habitat destruction and fragmentation due to agriculture, livestock grazing, deforestation, dams, and road construction. The mountain tapir is also hunted throughout its range. Occasionally, tapirs die from collisions with vehicles, especially in Belize.



**Fun Fact:** Baird’s tapir is the national animal of Belize.

# Meet the Tapirs: Tapirs of the Americas



## Lowland Tapir (*Tapirus terrestris*)

Status: **Vulnerable**

**Other Names:** The lowland tapir is also known as the Brazilian tapir, danta (Spanish), anta (Portuguese—Brazil), maypouri (Quechua), danta de tierras bajas o amazónica (Spanish), sachavaca, huagra (Perú); and gran bestia (Colombia, Ecuador).

**Distinguishing Features:** The adult lowland tapir has a bristly brown coat that varies in shade among individual animals. It has darker colored legs and lighter cheeks and throat. Its dark-colored ears are edged with white fur. The lowland tapir is distinguished from other tapir species by a stiff mane that extends along the crest from its forehead to its shoulder.

**Size:** The lowland tapir is approximately 1.8 meters (6 ft.) in length and weighs 225 kg (496 lbs.). The size of a small pony, it is typically smaller than the Baird's tapir, and larger than the mountain tapir. However, individual animals vary in size.





**Range:** The lowland tapir occurs through a wide geographic range throughout most of the tropical regions east of the Andes mountains in northern and central South America. Countries include Argentina, Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Suriname, and Venezuela.

**Habitat:** Rain forests and wetlands including palm swamps of South America are home to the lowland tapir. It is also found in areas with a dry season, such as the Chaco of Bolivia and Paraguay. In Brazil, this tapir species is found in the Atlantic Forest, the Pantanal, the Amazon, and the Cerrado. The lowland tapir prefers habitat near water and salt licks.

**Diet:** The lowland tapir eats fruits, leaves and other plant parts, including aquatic vegetation.

**Activity:** The lowland tapir forages for food at night, following trails through the forest. During the heat of daylight hours, it hides and rests. A strong swimmer, the lowland tapir is known to cross rivers and take refuge in water to escape predators. Its running motion resembles the galloping of a horse.

**Social Group:** The lowland tapir is primarily solitary except for mating and the mother-young relationship.

**Predators:** Jaguars are the primary predators of the lowland tapir. Pumas, which are smaller than tapirs, can prey on older or sick animals. Crocodiles and anacondas may also prey on the lowland tapir. Young tapirs are more vulnerable to predation.

**Conservation Threats:** The lowland tapir is locally common in some areas with salt licks and near water, yet overall, populations are declining. There is insufficient information to know how many remain in the wild. The major threats to this species are habitat loss and fragmentation due to deforestation; hunting for their meat for subsistence and commercial sale in city markets; and competition with domestic livestock. The lowland tapir is legally protected in many of its range countries. However, hunting regulations are not regularly enforced, which leaves this tapir vulnerable. Infectious diseases, soybean and sugar cane agriculture, eucalyptus plantations, forest fires, and pesticide pollution of water bodies threaten lowland tapir survival.

**Fun Fact:** This tapir's mane of short, stiff hairs helps protect its neck from the bite of a predator.



# Meet the Tapirs: Tapirs of the Americas



## Mountain Tapir (*Tapirus pinchaque*)

Status: **Endangered**

**Other Names:** The mountain tapir is also known as the wooly tapir, Andean tapir, tapir de montaña, danta conga, danta de páramo and danta lanuda.

**Distinguishing Features:** The mountain tapir has a brownish to black coat. Its long outer hair and undercoat of dense, wooly fur keep it warm through

the freezing night temperatures of its mountain environment. The adult has two bare patches on its rump. Notice the white line around its lips that, together with its longer hair, distinguishes the mountain tapir from others.

**Size:** This relatively small tapir measures 1.8 meters (6 ft.) in length, stands 0.8 meters (2.6 ft.) tall, and weighs 150-250 kg (331- 551 lbs.).







**Range:** The mountain tapir lives in Colombia, Ecuador and northern Peru. It is no longer found in its former range countries of Venezuela and Bolivia.

**Habitat:** This tapir species inhabits **montane** (mountain) cloud forests, riverine meadows, and **páramo** grasslands (alpine meadows) in the Eastern and Central Cordilleras, which are the highest of the Andes Mountains. It is found at altitudes of 2,000 to 4,300 meters (6,562-14,107 ft.). The mountain tapir prefers forests during the wet season, and may move to the páramo during the dry season where there are fewer biting insects.

**Diet:** The mountain tapir feeds on leaves, twigs, fruits, seeds and shoots of a large number of plant species in Andean forests and páramos.

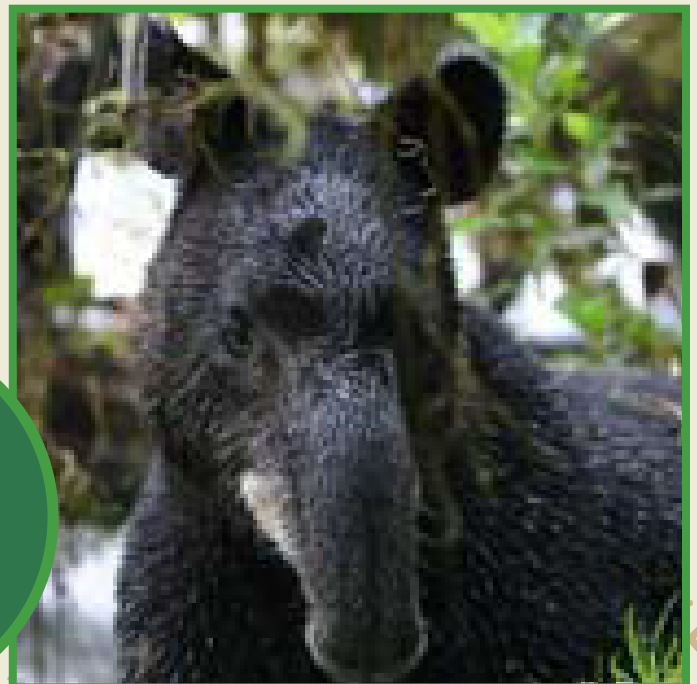
**Activity:** The mountain tapir is **crepuscular**, active around dawn and dusk. It is more active in low temperatures than on warm days. It is comfortable in water and can swim. An agile climber, this tapir is well adapted to moving on steep mountain slopes and over snow.

**Fun Fact:** The mountain tapir is the smallest tapir species, and the largest mammal in the tropical Andes.

**Social Group:** The mountain tapir is solitary, except for mating and the mother-young relationship. Its home range may overlap with other mountain tapirs, and they may gather at salt licks.

**Predators:** Pumas, spectacled bears, and occasionally jaguars prey on mountain tapirs.

**Conservation Threats:** As human populations expand in the Andes, people have increasing needs for land and development. The primary threats to the mountain tapir are now armed conflict (guerrilla warfare and military presence) and habitat loss. Habitat is degraded or fragmented due to opium poppy growing (and spraying herbicides for its eradication), ranching, agriculture and mining. Livestock can transmit infectious diseases to tapirs. Road building in protected areas, hydroelectric dam construction, and petroleum exploration also destroy habitat. This species has been hunted for its meat and hide. Body parts are used in local folk medicines. In some areas, hunting is no longer a major threat due to local regulations and increased awareness of this species' rarity and conservation status. Exact numbers of mountain tapirs remaining are not known; estimated population (as of 2008) is more than 2,500 individuals. Numbers are decreasing.



# Meet the Tapirs: Tapirs of Asia



**Malayan Tapir** (*Tapirus indicus*)

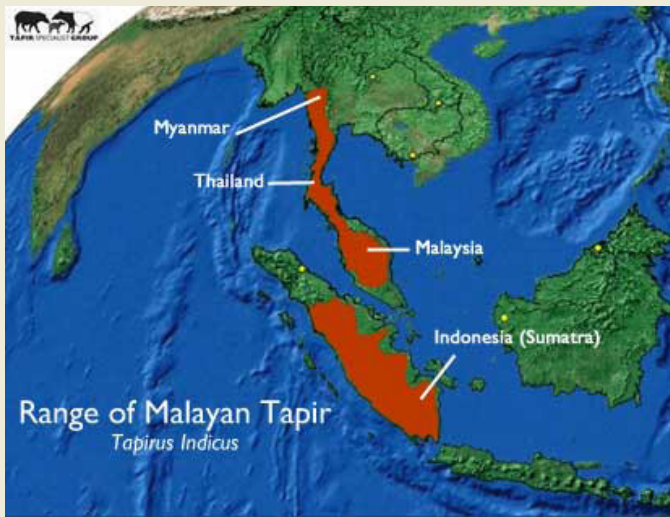
**Status:** **Endangered**

**Other Names:** The Malayan tapir is also known as the Malay tapir, Asian tapir, badak (Malaysia and Indonesia), and P'som-sett (Thailand).

**Distinguishing Features:** The Malayan tapir is black with a broad saddle of white or grey fur that extends from behind its front legs to its rump. This coloration appears conspicuous; however, it is **disruptive**. The black-and-white pattern breaks up the tapir's body outline, concealing it in the low light of the forest. Its black ears are trimmed in white fur.

**Size:** The Malayan tapir grows up to 1.8 meters (6 ft.) in length and weighs 250-350 kg (551-772 lbs.).





**Range:** This species is found from southern Thailand and southern Myanmar (Burma) through Peninsular Malaysia and on the Indonesian island of Sumatra. It was once found across Southeast Asia; it now occurs only in isolated populations.

**Habitat:** The Malayan tapir inhabits tropical rain forests, wetlands and lower **montane** (mountain) forests; it is also found in high mountain areas in Thailand. This species survives well in secondary, regenerating native forests. It occurs at forest edges and near rubber plantations.

**Diet:** The Malayan tapir browses on more than 380 species of forest understory plants. It snaps tall saplings to grasp leaves that are out of reach. This tapir also feeds on fruits and leaves found on the forest floor. It may feed on crops in cultivated fields.

**Activity:** The Malayan tapir is typically nocturnal, yet it is often seen during the day. Males have home ranges of about 12 square kilometers (five sq. mi.) that overlap with other tapirs. Females may have a larger range. This tapir can easily climb steep slopes. When alarmed, the Malayan tapir can gallop away swiftly.

**Social Group:** The Malayan tapir is primarily solitary, except for mating and the relationship between a mother and her calf.

**Predators:** Leopards prey on Malayan tapirs; tigers on the island of Sumatra also prey on tapirs.

**Conservation Threats:** Habitat destruction and fragmentation are the primary threats to Malayan tapirs. Large scale deforestation, including illegal logging for timber, is a major source of habitat loss, along with the growth of oil palm plantations. Hunting of tapirs is increasing as other large species in the area (former food sources) are declining. There are fewer than 2,500 wild Malayan tapirs remaining. The Malayan tapir is legally protected in all range countries. Parts of its habitat are protected in several national parks in Thailand, Myanmar, Peninsular Malaysia and Sumatra. Tapir populations remain isolated in these parks and unprotected forest fragments. Without corridors to connect these fragments, tapirs cannot travel to other areas to mate. Inbreeding caused by this genetic isolation is harmful to the health and viability of tapir populations.

**Fun Fact:** The Malayan tapir is the largest of the four tapir species and the only tapir in Asia.



# What is a Tapir?

**Subject:** Science

**Learning Objectives:**

**Students will:**

- Observe and describe tapir physical characteristics
- Compare tapirs to other animals
- Learn about mammal characteristics
- Discover how scientists classify tapirs

**Learning Outcomes:**

**Students will be able to:**

- Describe the physical features that distinguish tapirs from other animals
- Name the characteristics of mammals
- Classify the tapir as mammal related to a horse and a rhinoceros

**Materials needed:** Animal images as described

## 1. What kind of animal is a tapir?

- Discuss: What do you know about tapirs? *(Make a list)*
- What would you like to learn about tapirs? *(Make a list)*
- *Show an image of an adult tapir:* What do you notice about this animal?

## 2. (For young students):

- Do you think the tapir has a skeleton with a backbone?  
Yes—it is a vertebrate
- What kind of animal is it? Is it a fish, a bird, or a reptile?  
No—it is a mammal
- *Review or introduce:* What is a mammal? *(A mammal is a vertebrate, has hair, is warm blooded so it can regulate its body temperature, and produces milk to feed its young)*

## 3. What kind of mammal is a tapir?

- The tapir's long nose makes it look like an anteater *(show image)* and its rounded body looks like a very large pig *(show image)*. Tapirs are not closely related to either of these animals!
- How did scientists discover how tapirs are related to other animals? Tapir feet are the clue! *(show images of a tapir and a close-up image of its feet)*
- Tapirs walk on the end bones of their toes. They have four toes on their front feet and three toes on their back feet. Their toes are protected by a large nail that forms a hoof. Can you name other hoofed mammals? *(Make a list, show images of a few: horse, zebra, giraffe, goat, llama and an Asian one-horned rhinoceros)*

*Continued on next page*

#### 4. (For older students) How scientists classify the tapir:

- **Taxonomy** is the science of classifying living things.
- Each animal is given a unique scientific name in Latin. This allows people around the world to use a common language.
- Scientists use physical **characteristics** to classify animals. More recently, genetic testing is used to study animal DNA.
- Animals with hoofs are called **ungulates**. Some ungulates have an even number of toes and some, like the tapir, have an odd number of toes.

Here is how scientists have classified tapirs:

**Kingdom:** *Animalia* (all animals)

**Phylum:** *Chordata* (all vertebrates—animals with backbones)

**Class:** *Mammalia* (all mammals)

**Order:** *Perissodactyla* (all odd-toed ungulates)

**Family:** *Tapiridae*

**Genus:** *Tapirus* (all four tapirs)

**Species:** There are four different tapir species. Each has a unique individual species name.



# Mix and Match Tapirs

**Subject:** Science, writing

**Learning Objectives:**

**Students will:**

- Look at tapir images and compare similarities and differences among different tapir species
- Match tapir images with distinguishing characteristics and name cards

**Learning Outcomes:**

**Students will be able to:**

- Identify the four species of tapirs
- Name two distinguishing characteristics for each species

**Materials needed:** Cards with images of tapir species; Distinguishing characteristics of each of the four tapir species, and common names of tapirs may be printed from the website:

<http://tapirs.org/resources/educator-resources/>

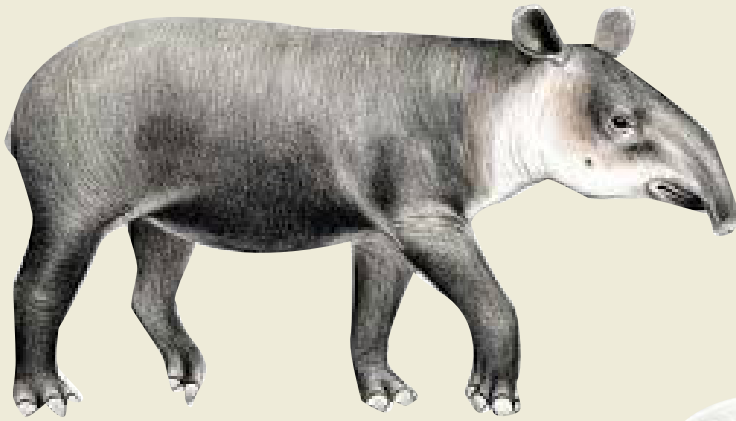
## 1. Four species of tapir:

There are four species (kinds) of tapir that live in different areas. Their bodies are similar but if you look closely you will notice some differences. Look at these different tapirs (*show images of four tapir species*). How these animals are the same and how they are different? (*Students can discuss or write down their observations.*)

- Which tapir is black and white? (*Malayan tapir*)
- Which tapir is the smallest of the four? (*Mountain tapir*)
- Which tapir is the largest of the four? (*Malayan tapir*)
- Which tapir has a dark spot on its light-colored cheeks below its eyes? (*Baird's tapir*)
- Which tapir has a mane from its shoulder to its forehead? (*Lowland tapir*)
- Which tapir has the longest hair? (*Mountain tapir*)  
*Why do you think this tapir has longer hair than the others? (It lives in a colder climate at a higher elevation, at altitudes of 2,000-4,000 meters/6,560-13,123 feet.)*

## 2. Mix and Match

- *Distribute tapir cards:* Which tapir is which? Match these tapir pictures with the cards showing their characteristics and their common names.



Baird's tapir



Malayan tapir



Lowland tapir



Mountain tapir



# Where Tapirs Live

**Subject:** Geography, science

## Learning Objectives:

### Students will:

- Examine a world map or globe to learn where tapirs live
- Older students will use tapir species range maps to identify and locate countries where tapirs live

## Learning Outcomes:

### Students will be able to:

- Identify that three tapir species are found in the Americas and one is native to Asia.
- Locate Central America, South America, North America and Asia on a world map or globe.
- Describe the meaning of an animal's range and use this vocabulary
- *Older students:* Find countries on a world map or globe where each tapir species lives.

**Materials needed:** World map or globe, tapir range maps links: <http://www.tapirs.org/tapirs/>. For older students: maps of the Americas and Asia, tracing paper

### 1. Where in the world?

- Tapirs live in forests and wetlands where thick vegetation provides many places to hide. These shy and secretive animals are often active at night and are hard to find. Because dedicated field biologists have spent many years studying tapirs, we know where these animals live.
- *Use a world map or globe:* On which continent do you live? Where do tapirs live? Baird's tapir, lowland tapir and the mountain tapir all live in the Americas. Let's find North America and South America on the world map/globe. Where is Central America? The Malayan tapir is the only tapir that lives in Asia. Let's find Asia on the map.
- The three species of tapirs that live in the Americas are found in different countries.
- The geographic area where a species lives is called its **range**.
- Which tapir species has the largest range?
- Which tapir species has the smallest range?

2. *For older students: **Map the tapirs' ranges.** Distribute maps of the Americas, of Asia, and the description of each tapir's range countries named below. Use the map of North, Central and South America, the map of Asia and the tapir range countries. Find each tapir range country on the maps. Use tracing paper to trace the countries on the maps and create a range map for each tapir species. *Students can work individually or in pairs.**

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## Tapir Ranges:

**Baird's tapir:** Oaxaca province, Mexico south to Central America (Belize, Guatemala, Honduras, Nicaragua, Costa Rica and Panama) to the west side of the Andean mountain ranges in Colombia. It is no longer found in El Salvador.

**Mountain tapir:** Colombia, Ecuador and northern Peru. It is no longer found in its former range countries of Venezuela and Bolivia.

**Lowland tapir:** North Central Colombia and east of the Andes through tropical South America in Venezuela, Guyana, Suriname, French Guiana, Guyana, Ecuador, Peru, Bolivia, Brazil, Paraguay and Argentina.

**Malayan tapir:** Southern Thailand and southern Myanmar (Burma) through the Peninsular Malaysia and the Indonesian island of Sumatra. It was once found across Southeast Asia; now it occurs only in isolated populations.

*Extension for older students to research the Earth's geologic history:*  
The Malayan tapir is found far away from the tapirs in the Americas. How can these animals be so similar? What happened in the Earth's geologic history that played a part in this?

# What's for Lunch?

**Subject:** Science, art

**Learning Objectives:**

**Students will:**

- Discover how a tapir uses its flexible snout
- Observe how specialized teeth help an herbivore eat plant foods
- See images of the tapir's vegetarian diet (or use examples to make a "lunch box")

**Learning Outcomes:**

**Students will be able to:**

- Name five plant foods that tapirs eat
- Describe three ways that tapirs use their long snout
- Use new vocabulary (appropriate to grade level)

**Materials needed:** Images of a tapir using its snout, close-up image of the snout tip, image of a tapir showing its teeth, images of tapir foods (if sample plant foods or models are available, students can make a tapir lunch box); lettuce or other leafy vegetable

## 1. A tapir's snout

- *Show close-up images of a tapir using its snout.* Look at that snout! Sometime people think that a tapir is related to an anteater, but these animals are not closely related. A tapir's flexible snout is its nose and its lip (like an elephant's trunk).
- The tapir's snout is its nose, used to breathe air and smell.
- The tapir has a keen sense of smell. It communicates with other tapirs by marking its territory with scent that it sprays on plants. Other tapirs check their scent messages as they wander through the forest.
- What else do you think a tapir can do with its snout? Tapirs are great swimmers. When they submerge in water to swim across a river, feed on aquatic plants, cool off, or escape a predator, tapirs can use their long snout like a snorkel to breathe.

## 2. What's for lunch?

- What are your favorite foods?
- Tapirs are **herbivores**. They eat a vegetarian diet of fruits, seeds, leaves, bark and other plant parts.
- Tapirs use their flexible snout to root around on the forest floor for fruits and other plant foods. That snout helps the tapir eat up to 40 kg (85 lbs.) of vegetation a day!
- *Show image of the tip of a tapir's snout.* The tapir's short, wide snout has a sensitive upper lip that acts like a finger to grab onto leaves and twigs (a grasping lip is **prehensile**).
- The tapir is a **browser**, plucking leaves, fruits and other plant parts from trees.
- Try it! *Students have to grab a piece of lettuce or other leafy greens using just their lips (not their hands or teeth).*

*Continued on next page.*

- *Show a tapir with its mouth open, showing teeth:* A tapir uses its chisel-shaped, upper and lower front teeth (**incisors**) to nip grass. Ridges on their low-crowned molar (**cheek**) teeth act like scissors, shearing leaves, twigs, vines and fruit. These teeth grind and shred their food.
- Wild tapirs may feed on more than 100 different kinds of plants! They can walk on muddy stream bottoms to eat **aquatic** plants (plants that grow in water)
- *Show images, or if available, use assembled samples or models of leaves, twigs, fruits, seeds, berries, ferns to have students make a tapir lunch box.*
- Draw a tapir eating fruit or leaves.

**Extension 1:** Pretend that you're a field biologist. Explore a natural area near where you live. What kinds of plants do herbivores in your area eat? Take photos or draw plants. Then draw the plants and fruits that you eat. Which are your favorites?

**Extension 2:** If you live near a zoo where tapirs live, visit the zoo to learn more about how the zoo cares for these animals.: What kinds of plant foods does the zoo provide to ensure that the tapirs have a nutritious diet? Which are the tapirs' favorite foods? Some zoo tapirs especially like bananas!



# Amazing Adaptations!

**Subject:** Science, writing, art

**Learning Objectives:**

**Students will:**

- Learn what an animal's habitat is
- Define the word "adaptation" as a physical characteristic or behavior that enables an animal to survive
- Discuss adaptations that allow tapirs and other animals to survive in their environment

**Learning Outcomes:**

**Students will be able to:**

- Describe what an animal's habitat is
- Define the word adaptation
- Name three adaptations of tapirs to survive in their environment
- Name three animals that are native to the students' area (from local wildlife in their backyard to animals that are native to their region) and discuss two adaptations that help these animals survive.

**Materials needed:** Images of tapirs in their natural habitat; images or illustrations of tapirs to show their adaptations; copies of the worksheets below; small empty cardboard boxes and craft supplies or natural objects for students to create a habitat

## 1. What is a habitat?

- Have students discuss basic needs and what an animal's habitat is. *Review or introduce:* What do we need to live? Animals have basic needs just as people do. A habitat is a natural place where an animal lives that provides for its basic needs. What do animals need to live? They need air, water, food, shelter, and a place to reproduce and care for their young.
- *For older students:* An animal's **environment** includes living things (*trees, other plants and animals*), and non-living factors (*such as temperature, light, air, soil and water*), that affect the animal's survival and development.

## 2. Tapir habitats

- Where do tapirs live? Show images of each species of tapir and have students describe each species' habitat (tropical forest, wetlands, mountain forest).
- Does the forest look like forests where you live? How are they the same or different?
- Baird's tapirs, lowland tapirs and Malayan tapirs live in tropical forests, wetlands and savannas in areas where it is hot and wet for much of the year.
- What do tapirs need in their habitat? (*fruit and other plant parts to eat, dense vegetation to remain hidden, water to drink and bathe in to keep cool*)
- How is the mountain habitat of the mountain tapir different from these tapirs? (*higher elevation, colder climate*)
- *Students can create a tapir habitat using a box and craft supplies or natural objects.*

*Continued on next page.*

### 3. What is an adaptation?

- *For younger students:* An **adaptation** is a body feature (*coloration, teeth, and long legs*) or a behavior (*hiding, running fast*) that helps an animal to survive where it lives. Adaptations help animals find food, keep warm, hide, escape from a predator, smell.
- *For older students:* An adaptation is a change or adjustment that enables a species to improve its ability to survive in its environment. Random genetic variations that occur over a long period of time may result in a change (such as coloration) that enhances an individual's ability to survive. That animal then has a better chance to reproduce and pass on this successful trait to the next generation. This is the process known as natural selection. These traits eventually spread through the population and become species characteristics.
- **Physical adaptations** refer to an animal's body. For example, feathers allow birds to fly. Spots or stripes on their fur allow some cats such as the jaguar and tiger to remain hidden and surprise their prey. Can you name other examples of physical adaptations?
- **Behavioral adaptations** are changes in an animal's behavior (in response to a stimulus) that help it to survive. For example, some animals use alarm calls to warn others of a predator nearby. Some animals move from one area to another (migrate) in different seasons to avoid cold or dry weather and find food and water. Can you name some other behaviors that help animals survive?

*Continued on next page.*

#### 4. Tapir adaptations

- Discuss tapir adaptations (See Amazing Adaptations, pages 10 -11), beginning with what students can notice. Younger students can draw a tapir showing one of its adaptations. Older students with writing skills can fill in the chart.
  - o Body shape
  - o Thick skin
  - o Flexible feet
  - o Snout for grasping and snorkeling
  - o Strong jaws and chisel-shaped teeth
  - o Sensitive hearing
  - o Good sense of smell
  - o Active at dawn, dusk or at night
  - o Good swimmers
  - o Mud wallowing
  - o Fast runners
  - o Leave scent marks
  - o Whistle and squeak

Adaptation	Physical (P) or Behavioral (B) Adaptation?	How this Adaptation Helps Tapirs Survive

*Continued on next page.*

### 5. Animals where I live:

- *Students can draw three animals that live in their region (in their backyard, near their home or in their country) and talk about adaptations that help these animals survive in their habitat. Older students with writing skills can complete the chart below:*

Animal Name	Natural Habitat	Physical Adaptation	Behavioral Adaptation	How this Adaptation Helps the Animal to Survive



# See like a Tapir

**Subject:** Science

**Learning Objectives:**

**Students will:**

- Examine an image of a tapir skull to see where its eyes are
- Compare eye placement and vision of predators and prey animals

**Learning Outcomes:**

**Students will be able to:**

- Indicate how monocular vision helps tapirs survive
- Describe how their own vision is different from a tapir's vision, and how our vision helps us to do what we do
- Name one animal that preys on tapirs

**Materials needed:** Images of a tapir and a tapir skull, close-up images of a leopard or tiger, jaguar, spectacled bear or puma, images of a monkey and of an orangutan

## 1. Eye placement

- *Show students images of a tapir and of a tapir skull.* Where are the tapir's eyes placed on its head? Why do you think tapirs have eyes on the sides of their head?
- What do tapirs need to do to survive? Tapirs have to watch for predators. Jaguar and puma and spectacled bears prey on Baird's and lowland tapir; puma prey on mountain tapirs and leopards prey on Malayan tapirs. On Sumatra, tigers prey on Malayan tapirs.
- Tapirs have poor eyesight compared to some other animals, yet having eyes on the side of their head allow tapirs to see over a wide field of vision. Why would this be helpful? The tapir can see a predator approaching from behind and flee.
- Show images of tapir predators. What do you notice about where their eyes are on their head? Why do you think cats have eyes that both face forward? These predators have **binocular vision** that helps hunt prey.

## 2. Binocular vision

- *Show images of a monkey and an orangutan:* These animals have forward facing eyes, but they are not predators. Having forward facing eyes and binocular vision helps these primates to judge distance as they move through trees.
- Where are your eyes on your head? (Your eyes face forward—you are a primate, too)
- **Experiment:** *How do we see in comparison to how a tapir sees? Ask students to stand and extend their arms out in front of them and then move them out to their sides.* How far back can you move your arms and still see your hands? That is your field of vision. If you had eyes placed further back on your head, do you think you could see things better to your side and behind you? How would that change what you can do (play, climb, play sports, read)?





# Flexible Feet

**Subject:** Science

**Learning Objectives:**

**Students will:**

- Observe a tapir's foot to learn how flexible feet help the tapir move over slippery surfaces
- Compare a tapir track to tracks of other animals

**Learning Outcomes:**

**Students will be able to:**

- Describe how a tapir's feet help it to survive

**Materials needed:** Close-up image/illustration of a tapir foot, image of a tapir on a muddy bank, illustration of a tapir track, illustrations of other animal footprints

## 1. Tapir feet

- Tapirs spend a lot of time walking along stream banks. These great swimmers cool off in streams and rivers where they find aquatic plants to eat.
- It can be hard for many animals to walk in mud. What happens when you walk in mud? Is it easy or harder to walk on mud than it is on hard ground? The tapir is a heavy animal and does just fine getting its feet muddy.
- Show image and illustration of a tapir's foot. Tapirs have hooved feet with four toes on the front feet and three on the hind feet. Toes are protected by nails that form a hoof. The fourth toe provides extra support to help tapirs walk on soft ground.
- Tapir feet are ideal for walking on muddy river bottoms or scrambling up slippery river banks. They can spread their toes to increase **traction** on slippery mud or soft, soggy soil. A large, flexible pad cushions their feet.

## 2. Tapir tracks

- *Show tapir footprint and tracks of other animals.* Look at the tapir footprint and compare it with the tracks of other animals. Do other animals walk on their toes or on their whole foot? Have students compare a bear's foot, a horse (*or other ungulate*) track, a jaguar track, primate footprint, wolf (*or other member of the dog family*) footprint. How do you think these animals move? How do their feet help them find prey (hunters) or escape predators? *You can create a worksheet using different footprints for students to match the animal to its tracks.*
- Which animals are native to where you live? Research what their feet look like and the shape of the tracks they leave. Do these animals walk on grasslands, beaches, wetlands, mountains or forests? How do they find food, and how do their feet help them survive?



# Growing up Tapir

**Subject:** Science, art, writing

**Learning Objectives:**

**Students will:**

- Learn about tapir families
- Observe a baby tapir's camouflage coloration
- Discover how a baby tapir grows and learns to become independent

**Learning Outcomes:**

**Students will be able to:**

- Name three ways a mother tapir takes care of her baby
- Describe how a baby tapir's coat patterns provide camouflage

**Materials needed:** Images of tapir mothers and their young; image of a baby tapir against green grass; images of a juvenile tapir eating and bathing

## 1. All in the Family

- Tapirs are usually **solitary** (live alone) except when mating and when a mother has a baby. Small groups of adults or juveniles sometimes graze together or gather at mineral licks.
- Thirteen to fourteen months after mating, the female gives birth to a single calf that weighs 7-11 kg (15-25 lbs.).
- The calf's eyes are open at birth, and it can stand within two hours. The mother feeds her baby milk.
- Tapirs are very gentle animals, but a mother will fiercely defend her baby from danger.
- *Show images of tapir mothers and their calf.* All tapirs are born with yellow or white striped and spotted coats.

## 2. Hide me!

- What do you think this baby tapir looks like? Some people say that it looks like a watermelon with legs!
- *Show baby tapir image in green grass.* Why do you think a baby tapir has a patterned coat? How would you hide if you were a baby tapir?
- Create a hiding place for this young tapir. What colors will you use? Can you see that its markings help it hide?
- When the mother tapir leaves to **forage** for food, she hides her baby in vegetation. Its coat pattern **camouflages** the young tapir in the dappled light of the forest.
- How do you think its mother finds her baby when she returns?

*Continued on next page.*

### 3. Growing up

- At a few weeks of age, a young tapir starts to follow its mother. The calf nibbles the leaves and fruits she eats, and continues to drink its mother's milk.
- When it is three months old, the calf begins to lose its patterned coat color as new hair grows in. At six months, it looks like adult.
- Young tapirs stay with their mother for 12-18 months.

**Extension:** Camouflage activity: If you live near a zoo or aquarium and can visit, students can observe animals that use camouflage and take photos of them. Or, students can research animals native to their region or country. Ask students to make a list of animals that have stripes, spots, or other camouflage coloration. How do predators and prey animals use camouflage? Students can gather these images and make a book, poster or presentation in class about animal camouflage.



# Talk to Me

**Subject:** Science

**Learning Objectives:**

**Students will:**

- Listen to tapir sounds
- Play a “find the tapirs” game
- Learn why tapirs scent mark

**Learning Outcomes:**

**Students will be able to:**

- Name two ways that tapirs communicate

**Materials needed:** Recording of tapir sounds, image of tapir smelling scent, a scarf for a blindfold, three clickers or other sound makers (if available)

## 1. Whistler of the Forest

- If you heard a tapir call in the forest you might think it was a bird.
- Tapirs “talk” to each other with sounds. A low-frequency squeal may say, “Here I am.” Males whistle or make a huffing sound when courting a female.
- Sounds resembling a repeated hiccup may indicate distress (such as a mother separated from her baby).
- Young tapirs make high-pitched squeaks when alarmed.
- Find the tapir activity: *Have students stand in a circle. Choose one student to be the tapir. He or she will stand in the center and wear a blindfold. Give three students in the circle “clickers” or some kind of sound maker, or they can clap or snap their fingers or click their tongues. The “tapir” has to find the other tapirs. Imagine that you are in the forest and cannot see the other tapirs because of the dense bushes and trees. Try different levels of sounds. Having a good sense of hearing does help an animal survive!*

## 2. Scent marking

- Scent messages help solitary tapirs communicate with others in their neighborhood.
- As they move through their home range, tapirs mark their territory by spraying scent on plants.
- *Show image of tapir opening its mouth, allowing scent molecules to waft over the roof of its mouth—this Jacobson’s organ provides a secondary sense of smell. Their keen sense of smell enables tapirs to recognize chemical signals left by others.*



# Forest Gardeners

**Subject:** Science, ecology

**Learning Objectives:**

**Students will:**

- Learn that some plants and animals depend on each other for survival
- Discover that tapirs spread plant seeds, helping the forest to grow

**Learning Outcomes:**

**Students will be able to:**

- Describe why tapirs are so important to the diversity of the forest

**Materials needed:** Images of tapirs eating, fruits, seeds and seedlings; video of a tapir eating if available; range map of how far a tapir travels

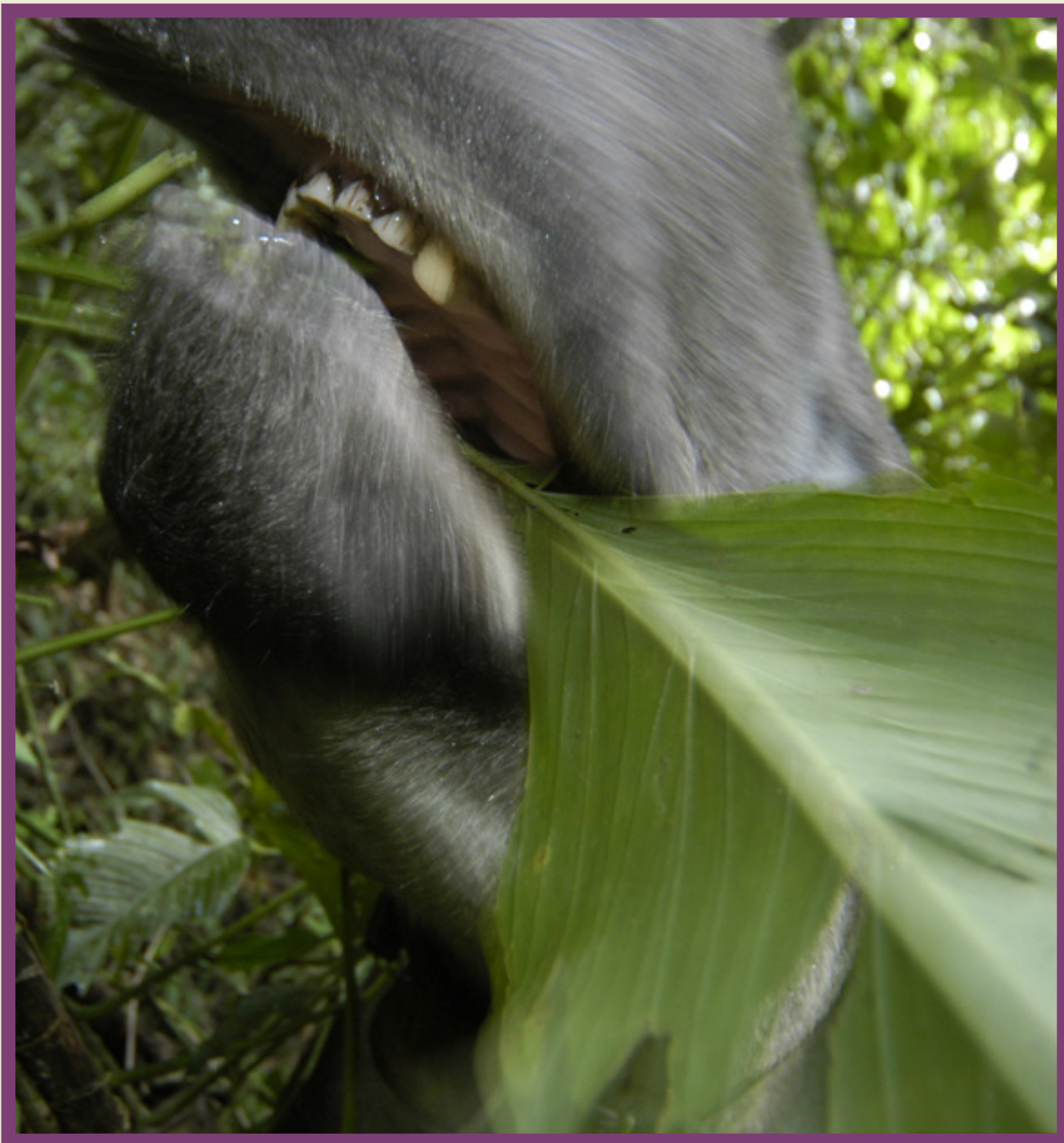
## 1. Tapirs eat (and poop) a lot!

- Tapirs are herbivores. They eat leaves, twigs, fruits and other plant parts.
- Tapirs may eat as much as 40 kg (85 lbs.) of vegetation a day!
- They eat huge amounts of fruit. It makes up as much as half their diet.
- When you eat fruit you usually spit out the seeds. Tapirs swallow those seeds and then guess what happens?
- The seeds pass through the tapir's digestive system and come out when the animal poops. These seeds come out in a clump of "fertilizer," ready to sink into the forest soil. Soon the seed sprouts and the seedling begins to grow.

## 2. Forest gardeners

- Show a tapir home range map. Adult tapirs roam a long distance in search of food. Their home range may be 2-5 sq. km (.7-2 sq. mi.) or larger (depending on which tapir species it is).
- Tapirs eat fruit in one place and poop out the seeds further away, so these animals spread seeds all over the forest.
- Tapirs are "gardeners of the forest." Do you think that this is important to their environment? Why or why not?
- Some plants and animals are interdependent. Tapirs help plants reproduce by spreading seeds to new areas. Tapirs depend on plants for food.
- What do you think would happen if there were no tapirs to spread all those seeds? Do you think that this might affect other animals?
- Spreading and "planting" seeds increases the forests' biological diversity. This provides food for many other animals. Tapirs are essential to healthy forests!





# Tapirs in Culture and Art

**Subject:** Social studies, language arts, art, writing

**Learning Objectives:**  
**Students will:**

- Discover the wide range of common names for the four species of tapirs
- Research how tapirs are portrayed in different cultures and folklore
- (If relevant) Learn how people in their own culture perceive tapirs

**Learning Outcomes:**  
**Students will be able to:**

- Recognize that there are different common names for tapirs in many world cultures
- Understand that tapirs have inspired artists in many art forms

**Materials needed:** Images of each tapir species, images of baku, and other tapir art images

## 1. Multilingual Tapirs

- Tapirs have many common names in world cultures  
(*show image of each tapir*)

### **Lowland tapir:**

Brazilian tapir  
Maypouri (*Quechua, Peru*)  
Danta (*Spanish*)  
Anta (*Portuguese, Brazil*)  
Danta de tierras bajas  
(*Amazon area*)  
Sachavaca or Huagra  
(*Peru*)  
Gran bestia  
(*Colombia, Ecuador*)

### **Baird's tapir:**

Danta (*Spanish*)  
Mountain cow (*Belize*)  
Macho de monte  
(*Colombia, Costa Rica*)

### **Mountain tapir:**

Woolly tapir, Andean tapir  
Tapir de montaña  
Danta conga, Danta de páramo,  
Danta lanuda

### **Malayan tapir:**

Malay or Asian tapir  
Cipan  
(*Peninsular Malaysia*)  
Badak Tampung  
(*Malaysia, Indonesia*)  
P'som-sett (*Thailand*)

- For students who live in tapir range countries: Are you familiar with these names? Have you heard other names for tapirs?
- With so many names, you can see why it is important that each species has a unique scientific name:
  - Baird's Tapir (*Tapirus bairdii*)
  - Mountain Tapir (*Tapirus pinchaque*)
  - Lowland Tapir (*Tapirus terrestris*)
  - Malayan Tapir (*Tapirus indicus*)

*Continued on next page.*

## 2. Tapirs in World Cultures and Folklore

- *Show images of the baku.* In China, Korea and Japan, the tapir is named after an animal from Chinese mythology. This creature had a trunk like an elephant and looks like a tapir. In Japanese mythology, the animal was called a baku. In Chinese and later Japanese folklore, the baku was said to eat people's bad dreams. Children place images of Baku under their pillows to ward off bad dreams. Images of this creature are also placed under the eaves of Japanese temples to scare off bad spirits.
- In Chinese, the name of this beast, and of the tapir, is *mò* in Mandarin and *mahk* in Cantonese. In Korea, the name is *maek*. The Japanese name for tapir is *baku*.
- For older students: Teams of students can research how tapirs are portrayed in other cultures and folklore, and share their information with the class.
- For students in areas where tapirs live: Talk with your grandparents or other family members about any experiences they may have had with tapirs. Share what you have learned in an illustrated poster, booklet or presentation.
- Use your imagination to create your own tapir creature. Give it a name and write a story about it.

## 3. Tapirs in Art

- Many artists are inspired by tapirs to create beautiful art.
- Draw your own tapir—it can look realistic or be a colorful, imaginary tapir!
- Make a tapir mask: <http://2012.natalya.com/tapirday/Tapir-MASK-SM.pdf>
- *Origami for older students:* Make a papercraft tapir [https://global.yamaha-motor.com/showroom/papercraft/animal-global/tapir/pdf/tapir\\_asse.pdf](https://global.yamaha-motor.com/showroom/papercraft/animal-global/tapir/pdf/tapir_asse.pdf)

# Tapir Cinquain

**Subject:** Poetry

**Learning Objectives:**

**Students will:**

- Learn a form of poetry known as a cinquain

Create their own expression through cinquain poetry

**Learning Outcomes:**

**Students will be able to:**

- Express their own feelings about tapirs

## 1. Cinquain

- A cinquain poem is a verse of five lines that do not rhyme.
- Here is an example of a cinquain:

Cat

Curious, furry

Pounce, groom, purr

Beautiful, graceful, swift, playful

Hunter

- Are you ready to be a poet? You will use nouns, adjectives and verbs to describe the tapir and how you feel about this animal.
  - **On Line 1:** Use one word (noun) to name the tapir. You can use one of the many names given to the tapir around the world or just the common word tapir.
  - **On Line 2:** Use two words (adjectives) to describe the tapir.
  - **On Line 3:** Use three words (verbs) to describe how the tapir moves or what it is doing.
  - **On Line 4:** Use four words that describe your feelings about the tapir.
  - **On Line 5:** Use another noun (synonym) for the tapir.

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_



# Studying Wild Tapirs

**Subject:** Science, technology, art, writing

**Learning Objectives:**  
**Students will:**

- Discuss what it is like to work as a field scientist
- Discover how field biologists study wild tapirs
- Explore how scientists use technology to learn about tapirs
- Examine why science is important to tapir conservation

**Learning Outcomes:**  
**Students will be able to:**

- Name two uses of technology used to study wild tapirs
- Describe three examples of information scientists determine from studying the data they gather
- Name two ways that field biologists are making a difference for tapirs and the ecosystems where they live

Materials needed: Images of tapir scientists working in the field and working in a local community; images of the tools and technology that scientists use; *(for older students)* copies of one or more of the “Meet the Tapir Scientists” profiles and copies of the relevant “Meet the Tapirs” fact sheet for that species

## 1. Being a field scientist

*Discussion:*

- What do you think a field scientist does? *Younger students can draw a field scientist studying tapirs. Older students can do a concept map: Have the students draw a circle and write “field scientist” inside it. What words or images come to mind? Draw a line from the center circle to each word or image. Keep these drawings for later.*
- If you were a scientist studying tapirs in their natural habitat:
  - In what kind of habitat does this tapir live?
  - What do you think you would like to learn from your field study?
  - What would you need to do to study tapirs? How would you get ready?
  - What would you need to pack to take with you?
  - What kinds of tools and equipment would you need?
  - Tapirs are often active in the dark (at night and in the early morning hours). How would that change how you would study these animals?

*Continued on next page.*

- Field biologists work all over the world to investigate animals and their habitats. This work can be very difficult. Many of the places where field biologists work can be very hot or very cold. Scientists track animals through thorny brush, up steep hillsides, over muddy ground, and when it is raining hard. Scientists may spend time in a natural area that is remote and far from where they live. It can mean sleeping in a hammock or on the ground, not having electricity, working long hours, sometimes staying up all night, and being away from their family. Scientists are bothered by mosquitoes and ticks and sometimes encounter venomous snakes. The work is hard and challenging. Why do they do it?
- *(Show images of tapir field scientists)* Field scientists are excited to learn about the animals they study. Many animals are endangered species. (3rd grade or older students: What does endangered mean?) Field scientists care a lot and they are dedicated. They know that their work can make a difference to help protect animals and habitats. This inspires them to overcome challenges and keep going.
- *(Show image of scientists working in a local community)* Learning and being able to make a difference for wildlife is very rewarding! Many field scientists also work in local communities. They teach children and adults about the animals they study. They help people find solutions to environmental problems that will help local communities and protect animals at the same time.
- What kinds of personal qualities do you think a field scientist needs to have?

*Continued on next page.*



## 2. Using science and technology to study tapirs (age appropriate)

- Studying an animal that is often active at night is hard work!
- Tapir scientists use technology to help them track and study these animals
- *Show images of scientists using tools in the field; discuss use of technology described on Page 16)*
- *Introduce trapping a tapir, anesthetizing the animal, health check, taking samples attaching a radio collar (Reassure students that this does not hurt the tapir)*
- **Radio collar technology:** Scientists use radio telemetry, VHF (very high frequency) transmitters and track signals in the field with an antenna. Collars equipped with GPS technology transmit signals to satellites, which allows scientists to track the animal's movements remotely. They learn where tapirs go and how they use their home range.
- **Camera traps:** Motion sensors collect images of passing animals. Scientists can see images remotely without directly observing animals in the field. Images show which individual tapirs live in the area. Scientists can learn about an animal's social interactions with other tapirs, and if the tapir has a calf.
- **Sample analysis:** Scientists collect samples of hair, blood, poop and tiny samples of skin. They take these samples to the lab for analysis. From poop samples, scientists learn what kinds of plants tapirs are eating. Hair and skin samples help scientists learn about tapir genetics. Blood samples reveal information about tapir health and diseases.
- *Discuss:* Do you think that science is important to tapir conservation? Why?
- The more information that field biologists gather that is based on their scientific research, the better able they are to make conservation recommendations. Their results help authorities make decisions about the need to protect tapirs. For example, scientists provide evidence that influences government officials to preserve wildlife habitat and to ban hunting of tapirs.
- What kinds of skills does a field scientist need to have?
- What do you think that field scientists studied in school to do what they do?

*Continued on next page.*



- Younger students can draw a picture of a scientist working in the field (How have their drawings changed since Section 1?). Collect images to make a class picture book.
- Older students can add to their concept map. Discuss with them how their ideas about field scientists have or have not changed.

### 3. Meet a tapir scientist

- For older students: Select one of the four tapir scientists profiled on pages 20-27. If you live in a tapir range country, choose the scientist who studies the tapir native to your area. Distribute copies to students. Or, use all four profiles and divide students into teams to study and compare each scientist's work and experience. Distribute tapir fact sheets.
- Students can work in teams. Ask the students to read the profiles and answer the following questions:
  - o What do you think inspired this scientist to study tapirs?
  - o What did this person study in school?
  - o What is this scientist learning about tapirs?
  - o Do you think that this scientist could do this work alone? Why or why not?
  - o What kinds of skills that other people have help this scientist's work?
  - o What do you want to learn more about this work?
  - o Students can share their answers with the class

**Extension:** Some field biologists work in your local forests, wetlands or rivers. What we learn about our native species and our local area is important, too!

You are now a field biologist. Pick an animal and research information about it. It can be an animal that lives in your neighborhood or an animal that lives further away. In what kind of habitat does this animal live? Will that affect your work as a field scientist? What materials, tools and technology would you need? What would you like to learn about this animal and its habitat? If this habitat is in a different area than where you live, who are the people who live in that area? How do they feel about this animal? How would you work with local people to get them to help save your animal? Write a letter to a friend or a practice blog about your experiences.

# Protecting Tapirs

(for older students)

**Subject:** science, environmental studies, reading

## Learning Objectives:

### Students will:

- Consider why tapirs are in danger of extinction
- Learn how Dr. Patrícia Medici and other tapir scientists are helping to protect wild tapirs
- Learn about a zoo's role in tapir conservation

## Learning Outcomes:

### Students will be able to:

- Indicate that loss of habitat and hunting as major threats to tapirs
- Name three ways that field scientists are making a difference to help tapirs
- Name two ways that zoos contribute to tapir conservation

**Materials needed:** Images of four tapir species; for English-speaking students: Video of Dr. Patrícia Medici's TED talk available on [https://www.ted.com/speakers/patricia\\_medici](https://www.ted.com/speakers/patricia_medici); book: *The Tapir Scientist* by Sy Montgomery

## 1. Why are tapirs in trouble?

- *Show tapir images:* Of the four species of tapirs, the lowland tapir is listed as a Vulnerable species, meaning that their populations are declining. The other three species—Baird's tapir, mountain tapir and Malayan tapir are Endangered species. This means that their remaining populations are so small that they are in serious danger of extinction if they are not protected.
- Most tapirs live in tropical forests (mountain tapirs live at higher elevations). Why do you think that tapirs are in trouble? (Discuss clearing of land as people need more natural resources)
- Why do people cut down forests? (*Discuss cattle ranching, large-scale agriculture and logging of tropical trees*)
- Dams are built in tropical areas to provide hydroelectric power. These disrupt wetland habitats. As more land is developed for human needs, roads and highways are built. How do you think these affect tapirs?
- Small areas of habitat may be left, but these are too small to support tapirs that need a large range to find the foods they eat.
- When loss of their habitat isolates tapirs in patches of forest without wild land to connect them, tapirs become isolated. They cannot roam to find mates in other areas. This reduces the genetic diversity needed to maintain healthy populations.
- Tapirs are hunted for their meat, hide and other body parts used for medicines. While hunting is illegal in many tapir areas, regulations are not regularly enforced.

*Continued on next page.*

- Review: What are the two major problems that threaten tapir survival? Habitat loss and hunting
- What do you think people can do to help protect tapirs and their wild habitat?
  - Introduce the idea of establishing a wildlife “corridor” to link patches of habitat so that tapirs can move between areas.

## 2. How scientists are helping tapirs

- Dr. Patrícia Medici is a conservation biologist who has been studying the lowland tapir in Brazil since 1996.
- Watch Patrícia Medici’s TED talk “The coolest animal you know nothing about and how we can save it” found on [https://www.ted.com/speakers/patricia\\_medici](https://www.ted.com/speakers/patricia_medici).
- Habitat protection: Patrícia Medici and other tapir scientists use the results of that research to advocate for policy change. Dr. Medici and other tapir scientists work with local and regional governments to secure protection of tapir habitat.
- Hunting bans: Results of tapir studies have influenced governments to ban hunting of tapirs in some areas. Field scientists also work with government officials to plan ways to enforce hunting regulations. For example, Dr. Chris Jordan, who studies Baird’s tapir in Nicaragua, worked to establish a team of Forest Rangers in a tapir reserve.
- Collisions: In many tapir areas with an expansion of roads and highways, tapirs are struck and killed by vehicles. Dr. Medici has worked with authorities in Brazil to have warning signs installed along highways in tapir areas, urging motorists to slow down. She and her team use reflective collars when they radio collar tapirs, so that the animals are more easily seen by drivers as the animals cross roads at night.
- Education: Patrícia Medici and her Lowland Tapir Conservation Initiative team educate landowners, ranchers and other people in local communities. They encourage the adoption of environmentally-friendly agricultural practices. By increasing awareness about the importance of tapirs to their environment, the team hopes to encourage land protection and reduce tapir poaching. Dr. Medici and her team distribute educational materials and present educational activities for children in rural schools.

*Continued on next page.*



- Do you think that having the support of local communities is essential for wildlife conservation? Why or why not?
- Learn more about Patrícia Medici's tapir conservation work in Brazil by reading *The Tapir Scientist* by Sy Montgomery.

### 3. How zoos care for tapirs and help tapir conservation

- *Discussion:* Why do you think that some zoos have tapirs and other threatened and endangered species?
- Scientists who study tapirs in zoos learn information that helps zoo staff provide excellent care that meets the animals' needs and keeps them healthy. Research on zoo tapirs also helps field biologists who study these secretive animals in their wild habitats.
- Zoos work together to manage populations of endangered species. Staff keep records of all animals in their care, such as when the animal was born and who its parents are. They share this information with other zoos.
- Zoo staff use the records of each tapir to decide which individual animal should mate with another. This helps zoos to have genetically healthy populations of tapirs.
- Zoos have an important role to play in conservation of tapirs and their wild habitat.
- Zoos enable many people to see and learn about tapirs and how important these animals are to their environment. These close encounters create an emotional connection that inspires visitors to care about protecting wild tapirs. Zoos encourage conservation action and educate visitors about how they can help save tapirs and their tropical forest habitat.
- Many zoos become tapir conservation partners by supporting Patrícia Medici and other tapir scientists with financial contributions and by providing field equipment.



# You Can Help Save Tapirs!

**Subject:** environmental studies, language arts, art

**Learning Objectives:**  
**Students will:**

- Learn how they can make a difference for tapirs

**Learning Outcomes:**  
**Students will be able to:**

- Name three ways they can take action to help tapirs
- Pledge to take action to help tapirs
- Share with others what they have learned about tapirs and how everyone can protect these animals

**Materials needed:** Tapir action pledge cards

## 1. How to help tapirs:

Tapirs are in danger and they need your help! No matter where in the world you live, you can take action to save tapirs. What do you think you can do to help tapirs? *Discuss and make a list of students' ideas.*

Here is how you can help:

- Learn all you can about tapirs. Spread the word on Facebook and other social media so that others will know how important tapirs are, too.
- "Like" The Tapir Specialist Group Facebook page and share their posts on your page.
- If you live in a tapir range country near tapir habitat:
  - Ask your family to slow down when you drive, especially at dawn, dusk or night to avoid hitting a tapir. Share this message with your family and friends.
  - Encourage your family not to hunt tapirs or buy meat or products made from tapirs. Tell others to avoid tapir products.
  - If you live near a park where tapirs live, visit that area to help to support the economy of local communities.
- Write a letter to your government officials and urge them to support laws that will conserve tapir habitat.
- Your class can support tapir research and conservation by making a donation to the Tapir Specialist Group Conservation Fund at the Houston Zoo: <https://www.houstonzoo.org>.
- If you live near a zoo that has tapirs, support your zoo's tapir conservation efforts.
- Help protect the tapir's tropical forest home:
  - Recycle paper, aluminum cans and everything you can to reduce the need for taking natural resources from the rain forest.

*Continued on next page.*

- o When you and your parents buy tropical wood products, be sure that the trees were harvested in a way that helps protect wild habitat. Look for the Forest Stewardship Council (FSC) label.
- o Reduce your use of energy to lessen the effects of climate change: Turn off lights and electronic equipment when not in use. Walk or ride a bicycle, and encourage your family to drive less. Adjust the heating and cooling system in your home. Turn the thermostat down two degrees in winter and up two degrees in summer.

Every individual action makes a difference. Together, our actions will protect a future for wild tapirs.

- *Distribute tapir action pledge cards.* What actions will you take to help tapirs? Post student pledge cards in your classroom. *Take a photo of your students' pledges and post it to our Facebook page: <https://www.facebook.com/TapirSpecialistGroup>*

## **2. Here are some ways you can share what you have learned with others:**

- Make a poster to make people more aware of tapirs and how important they are to their environment. Look at [www.tapirs.org](http://www.tapirs.org) to see the poster that artist Elise Smorzewski's created for World Tapir Day. Draw her outline of a tapir and use your own words.
- Create your own poster using drawings, images, and why people should save tapirs. Take images of student posters to post on our Facebook site: <https://www.facebook.com/TapirSpecialistGroup>.
- Write a story about a tapir's life and draw pictures to illustrate it.
- Make your next birthday party a tapir-themed event and ask for donations to the TSG instead of gifts.
- Create a video. Pretend that you're a famous wildlife television personality. Plan a three-minute talk about your favorite tapir species and why these animals are so important. Students can take turns filming each other. How will you share your video?
- Teams of students can create presentations about tapirs using images and video to share with other classes, the whole school, or at a family event.

*Continued on next page.*



- Use theater, music and dance! Students can perform for other classes, the whole school, or at an event to show family and friends:
  - o Create a class skit about tapirs and the need to protect them.
  - o Use music! Write a song or create a dance to show why you love tapirs.
- Start a campaign at your school, zoo, park or nature center. Why should we protect tapirs and their wild habitat? Make a sign, design a logo, or create a brochure. What else can you make to promote saving tapirs? Get others to take the tapir action pledge!
- Your campaign might also raise money to help tapirs. You could have a bake sale or other activity to help raise awareness and funds.
- Create a class Facebook page to encourage tapir awareness.





# Glossary

**Adaptation** - a physical, physiological or behavioral characteristic that enhances an animal or plant's ability to survive and reproduce in its environment

**Aquatic** - related to water

**Biodiversity** - the variety of life on Earth including genes, species and ecosystems

**Biome** – a geographic area of the planet that is classified according to the plants and animals that live there (for example, a tropical rain forest).

**Browser** – an animal that feeds on leaves, fruits and other parts of woody plants such as shrubs

**Calf** – a young animal such as a baby tapir

**Camouflage** – an adaptation that allows some animals to blend in with their environment and hide

**Cerrado** – a tropical savanna (grasslands) of Brazil

**Characteristic** - typical quality or feature

**Crepuscular** - active at dawn and dusk

**Deciduous** – shedding, as in a tree that loses its leaves seasonally

**Deforestation** – clearing an area of trees

**Disruptive coloration** – a type of camouflage that breaks up the outline of the animal with strongly contrasting colors

**Ecosystem** – the interaction of living and non-living things in an environment

**Endangered species** - a species of plant or animal that is at serious risk of becoming extinct

**Environment** – the surroundings and conditions in which an animal lives

**Fragmentation** - being broken into smaller parts

**Gestation** – pregnancy; the period of development from conception to birth

**Habitat** – the place and natural conditions in which a plant or animal lives

**Herbivore** - an animal that feeds only on plants

**Home range** – the area where an animal lives and moves

**Incisor teeth** – an animal's front teeth, adapted for cutting

**Indigenous** - occurring naturally in a particular place; native to an area

**Jacobson's organ** - sensory cells on the roof of the mouth of some mammals, reptiles and amphibians that enables animals to detect scent (an accessory sense of smell)

**Keystone species** - a plant or animal that plays a unique role in the way an ecosystem functions and is crucial to its survival

**Mammal** – a warm-blooded vertebrate with hair or fur on its body that feeds its young with milk produced in mammary glands

**Montane** – related to mountains

**Nocturnal** - active at night

**Pantanal** - a natural region in Brazil that is the world's largest wetland area

**Parámo** – high elevation meadows above the tree line

**Peripheral** – on the edge or periphery (as in side vision)

**Poaching** – illegal hunting and killing, or capturing animals live for the pet trade

**Predator** – an animal that hunts other animals for food

**Prehensile** – capable of grasping

**Prey** (noun) – an animal that is hunted by another animal for food; (verb) to hunt and feed on another animal

**Proboscis** – the long, flexible nose of an animal, such as the tapir's snout

**Rain forest** - a dense forest that receives heavy rainfall

**Sagittal crest** - a bony ridge on the top of the skull of many mammals, where the jaw muscles attach

**Savanna** – tropical grassland

**Understory** – in a forest, the layer of vegetation above the forest floor and beneath the canopy

**Ungulate** - a hoofed mammal

**Unsustainable** – unable to be maintained at the current level or rate

**Vertebrate** – an animal with a backbone



# Tapir Resources

## Books

Carbone, Terry and Keith Du Quette (illustrator). 1992. *Happy as a Tapir* Viking Penguin, 32 pps.

Montgomery, Sy. 2013. *The Tapir Scientist: Saving South America's Largest Mammal* HMH Books for Young Readers, 80 pps.

## Online Resources

**Tapir Specialist Group** <http://www.tapirs.org>

Baird's tapir fact sheet

<http://www.tapirs.org/tapirs/bairds.html>

Lowland tapir fact sheet

<http://www.tapirs.org/tapirs/lowland.html>.

Mountain tapir fact sheet

<http://www.tapirs.org/tapirs/mountain.html>

Malayan tapir fact sheet

<http://www.tapirs.org/tapirs/malay.html>

**TSG Links to Learn More about Tapirs**

<http://www.tapirs.org/tapirs/links-to-learn-more.html>

**National Geographic**

<http://www.nationalgeographic.com/animals/mammals/group/tapirs/#>

**Encyclopedia Britannica** <http://kids.britannica.com/students/article/tapir/277270>

**The Tapir Gallery** <http://www.tapirback.com/tapirgal/students.htm#links>

**About World Tapir Day**

<http://www.tapirday.org/about-wtd.html>

**About Tapirs**

<http://www.digimorph.org/resources/tapirs.phtml>

**Ultimate Ungulate** <http://www.ultimateungulate.com/Perissodactyla/Tapiridae.html>

**San Diego Zoo**

<http://animals.sandiegozoo.org/animals/tapir>

**15 Cool Facts about Tapirs**

<https://www.expertsure.com/2009/09/25/15-cool-facts-about-tapirs-plus-photo-gallery/>

**Edge of Existence:** [http://www.edgeofexistence.org/mammals/species\\_info.php?id=80](http://www.edgeofexistence.org/mammals/species_info.php?id=80)

[http://www.edgeofexistence.org/mammals/species\\_info.php?id=126](http://www.edgeofexistence.org/mammals/species_info.php?id=126)

**Tiago, Tell Us about Tapirs** <http://www.funtrivia.com/playquiz/quiz32774625853f8.html>

**A to Z Animals**

<https://a-z-animals.com/animals/tapir/>

**Young People's Trust for the Environment**

<http://ypte.org.uk/>

**Toucan and Tapir Prepare for Disaster!**

[http://www.preventionweb.net/files/3907\\_ToucanandTapirHurricaneGuide.pdf](http://www.preventionweb.net/files/3907_ToucanandTapirHurricaneGuide.pdf)

## Additional Online Resources

### IUCN Red List:

Baird's tapir  
<http://www.iucnredlist.org/details/21471/0>  
Lowland tapir  
<http://www.iucnredlist.org/details/21474/0>  
Mountain tapir  
<http://www.iucnredlist.org/details/full/21473/0>  
Malayan tapir  
<http://www.iucnredlist.org/details/full/21472/0>

### Animal Diversity Web

[http://animaldiversity.org/accounts/Tapirus\\_indicus/](http://animaldiversity.org/accounts/Tapirus_indicus/)

### Arkive

<http://www.arkive.org/lowland-tapir/tapirus-terrestris/>

### Institute for Ecological Research

<http://www.ipe.org.br/en/projects/pantanal/1285-lowland-tapir-conservation-initiative>

### Lowland Tapir Conservation

<https://www.tapirconservation.org.br/about>

### Mongabay

<https://news.mongabay.com/2011/09/loving-the-tapir-pioneering-conservation-for-south-americas-biggest-animal/>

### Baird's Tapir in Nicaragua

<https://msu.edu/~urquhart/professional/BTinNicaragua.pdf>

<http://www.youtube.com/NicaraguaTapir/>

### Virtual Rainforest Michigan State University

<https://msu.edu/user/urquhart/rainforest/Content/Gerald-Urquhart.html>

### Global Wildlife

<https://www.globalwildlife.org/2015/12/17/QA-from-the-field-Nicaragua>

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#### Malayan Tapir Map

Carlos Pedraza, TSG, 2008