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Biodiversity Research Project

Ecology

Tapirus terrestris, lowland tapir, is one of the largest native terrestrial mammals in the Neotropics. Weighing from 150 to 250 kilograms and a length from 204 to 220 cm long. Females are typically larger in size than males. Lowland tapirs are dark brown to red and juveniles may be distinguished from adults by their horizontal white stripes. Distinctive features of the *T. terrestris* is their sagittal crest, that gives a hump like look that extends from the eyes to the neck, and their nose is an elongated appendage called a proboscis.

As an herbivore, the lowland tapir's diet varies from leaf and fibrous vegetation to fruits. In areas of higher fruit densities, the lowland tapir will then consume more fruit than other vegetation (Henry 2000). The foraging habits of the lowland tapir could affect the rain forest landscapes because they are a known seed disperser and transporter of intact fruit seeds, specifically palm fruits. These fruit seeds are found in the droppings of lowland tapirs, transporting these seeds over many kilometers (Tobler 2009) in dry landscapes and in streams and ponds (Henry 2000). Most studies on lowland tapirs and their seed dispersal concentrate on palm fruit seeds, but it is suggested that they could be dispersers for hundreds of plant species in the tropics (Tobler 2009).

T. terrestris is known to inhabit and range in lowland South American watersides, swamps, river edges, and in some wetland sites (Trolle 2008). Preferring moist and dry forest habitats in lower elevations, they are considered a forest dependent species. Lowland tapirs reach their highest

densities in Amazonian forests, specifically in palm swamps, where the plant species *Mauritia flexuosa* (a palm tree bearing fruit) is dominant. These palm swamps can be considered a hotspot for the lowland tapir. It is suggested that, seasonally, lowland tapirs can choose a habitat according to the abundance of fruit species (Henry 2000). But, little to no information is found on the home range that a lowland tapir travels, a study on lowland tapir density recorded and estimated range smaller than 150 to 400 ha (Trolle 2008, Tobler 2009). The lowland tapir is a competent swimmer and an effective mountain climber that is known to clear paths in order to reach bodies of water.

Distribution

T. terrestris are located predominately in Brazil, but can have a wide geographic range that covers most of the South American tropical forests. It can be located in areas such as Venezuela, Argentina, Bolivia, Ecuador, Peru, French Guiana, and Paraguay. History of the lowland tapir shows anywhere east of the Andes, but populations have been reduced to the point where it is constrained to tropical forests. The lowland tapir, it is suggested, may select habitats according to fruit abundance and accessibility (Henry 2000) and with habitat loss threatening this species these areas are becoming scarce.

The lowland tapir's are a shy, solitary species outside of their reproductive seasons and are a nocturnal species, grazing for food at night. But have been sighted grazing during the day (Bodmer 1997). They are known to be aggressive when competing for mates or defending their territories that they inhabit (Bodmer 1997). Records of the lowland tapir population size are limited, but it is acknowledged as a species that is in decline as they are being hunted for food and are subject to habitat loss. Recovery of this species is a challenge due to the low

reproduction rate and gestation periods (ranging from 380 to 439 days). And the density estimate of the *T. terrestris* is around 0.20 to 3.7 individuals/km² (IUCNredlist.org).

Threats

Major threats to the lowland tapir include hunting, habitat loss, and competition with domestic livestock. *T. terrestris* ranges in legally protected areas, specifically protected from hunting, but that does not stop hunting from occurring as the laws are not strictly forced. Because of their large size, the lowland tapir becomes a prized source of protein for the native and rural people of South America. Hunting is an issue in countries where a market opens up for lowland tapir and legal/illegal trading occurs for the meat of the lowland tapir, they are part of the bushmeat crisis. Also deforestation in South America is minimizing the ranges of the lowland tapir and as more logging roads open up, more hunters are able to track down *T. terrestris* and sell them in local markets. Since the range of the lowland tapir is extensive, deforestation increases the vulnerability to habitat loss (Prado 2013).

Habitat loss not only affects the range of the lowland tapirs but it also destroys valuable habitats to the tapirs, specifically palm fruit forests. The palm fruits are considered a primary food source for the lowland tapirs and with deforestation impeding on the tapir's range the palm fruit forests are disappearing as well (Bodmer 1997).

They are also impacted by competition with livestock for food and grazing areas. As agricultural sites increase in number and size, fragmentation of the lowland tapir's habitat ranges decreases the survivability of the lowland tapir. Local canines that protect sites from predators and trespassers, scare away tapir barring them from gaining access to a variety of healthy habitats.

And as more habitat becomes unavailable so does the vegetation and fruit accessibility, where we could see a population decline of the lowland tapir.

Conservation Methods

The lowland tapir is considered a vulnerable species by the International Union for Conservation of Nature (IUCN). This is a concern because of the contributions that the lowland tapir provides for the ecosystems it can inhabit. *T. terrestris* is considered to be a primary seed disperser and transporter of a diverse amount of plant seeds in the tropics that potentially increases the biodiversity in South American tropics (Tobler 2009).

IUCN can only estimate the population size of the lowland tapir, but they predict a loss of 30% in the past 30 years due to habitat loss and hunting. Where the lowland tapir has been spotted, mainly in protected areas, it is still vulnerable to a population decline because hunting still continues and the government does not strictly enforce the laws. More research is needed on the population size of lowland tapirs and their habitat range but some researches have been providing methods of counting and tracking through camera trapping.

Camera trapping is considered a new method of research, especially for lowland tapirs because they are nocturnal. Photographic images are taken and then studied to see if tapirs are present in the image. They are then identified by unique marks or traits that would be visible in other photographs (Trolle 2008). This is a time consuming method, and results can vary when some lowland tapirs are present but cannot be confidently identified. But if certain habitats were surrounded by cameras and the time was taken to count the individuals, we could get results and population sizes. With comparisons of results overtime, the true account for this species and its

population trends could be viable information in order to understand the magnitude in which this species is affected by human influence.

The camera trapping will also help predict viable hotspots to protect the lowland tapir. Where we find the tapirs in highest density, I feel, we should protect those areas. Lowland tapirs are selective species when it comes to habitat, fruit availability is a major component to the habitat it prefers. The protection of these identified areas would not only promote the lowland tapir but potential fruits and vegetation as they can be dispersed by the tapir providing a healthy rain forest and biodiversity.

The lowland tapir has already been seen as a species to protect by the Tapir Conservation Unit (TCU) where their goal is the survivability of the species over the next 100 years. Since agriculture is considered private property, not a lot can be done in maintaining and protecting lowland tapirs there, one of TCU's priorities is to inform the native landowners of the lowland tapir and teach them the important conservation actions that need to take place (Trolle 2008). But it shouldn't stop there, I would include more regulations and limits on the logging industry that is taking away viable habitats for the lowland tapir. And it is also cutting off access of habitats through fragmentation by logging roads and clear cut sites. In these areas, the government needs to enforce the laws of illegal hunting, instead of looking past this current threat on the lowland tapir.

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