**////Title: Return of Baird’s Tapir: Blessing or Omen?**

**////Standfirst:**

The destruction of jungle and forest habitats is a serious issue threatening species across the globe. Dr LaRoy Brandt and Maggie Singleton of Lincoln Memorial University studied one such threatened species, Baird’s tapir, in Costa Rica. By identifying the tapir’s tracks and deploying remote trail cameras, the team caught rare glimpses of this threatened species, indicating a return of the native population and an increase in their numbers. The question is, however, is this increase a sign of improving habitats or a result of less favourable forces at play?

**////Main text:**

Tapirs are charismatic mammals with an appearance of a horse-like pig, but with a short, elephant-like trunk. Baird’s tapir is not only the largest species of tapir, but it is also the largest native land mammal in both Central and South America.

Large herbivorous mammals like tapirs are an important part of jungle ecosystems. Their loss from an area can have cascading effects that threaten other animals and plants. Unfortunately, Baird’s tapir has been in continual decline due to habitat loss, hunting, and low reproductive rates. Because of their important role in the ecosystem and their dwindling numbers, biologists are keen to track and monitor wild tapir populations, to find ways of restoring their populations.

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Dr LaRoy Brandt and Maggie Singleton of Lincoln Memorial University set out to look for traces of Baird’s tapir around the La Suerte Biological Field Station in Costa Rica. Situated in the northeast of the country in Limon Province, the site consists of approximately 400 hectares of a variety of habitats, including swamps, marshes, and pastures. The land also hosts many secondary forests and tree plantations. Secondary forests are forests that have re-grown and recovered after being cleared in the past, perhaps for agriculture, giving the natural ecosystem a chance to re-establish. In addition, over the past seven years, areas of the field station have been replanted with over fifty-thousand trees.

Importantly, the site is linked with other larger forests through a number of corridors. These corridors serve to link together fragmented forest areas, allowing animals to move between the forests and maintain larger territories. The corridors also link together into the larger Mesoamerican Biological Corridor, which stretches from Belize to Panama, allowing animals to migrate between North and South America.

Despite these efforts in creating forest corridors, the landscape is still dominated by large-scale agriculture. The La Suerte Biological Field Station and its managed lands and forests have become something of a refuge for animals displaced from their homes. This includes hundreds of species of amphibians, reptiles, birds and mammals, and more recently, increasing anecdotal sightings of Baird’s tapir.

It had been assumed for several years that this elusive mammal lived within the field station lands, but with increasing anecdotal reports, Dr Brandt and Singleton set out to capture some definitive proof.

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The team placed eight automatic cameras throughout four habitats. These cameras trigger automatically, day or night, at any sign of movement. The first of these four habitats were ‘older secondary forests’, which are forests that have regrown after being cut down more than 30 years ago. ‘Younger secondary forests’, which have recently regrown after a period of cattle grazing, were the team’s second habitat. The researchers also placed cameras in two types of teak tree plantations.

The first step was to look for tracks to determine the best places to put cameras. Tapirs are ‘odd-toed ungulates’ – a group of mammals defined by the odd number of toes they have adapted to walk on. This group contains Rhinoceroses, which walk on three toes, and horses, which walk on one toe. While the front legs of tapirs walk on four toes, their back legs walk on three. The team searched around until they noticed the distinctive tapir tracks in the forest habitats.

The researchers placed their cameras on trees within 30 meters of the tracks they found. For seven months, the cameras stayed in the trees, capturing anything that might trigger the shutter.

The mission was a success. Overall, four of the eight cameras captured images of Baird’s tapir all within the older secondary forests and teak plantation areas. Excitingly, the cameras not only obtained images of adult male tapirs, but also captured sightings of a female and juvenile. This shows that the population may be in the process of re-establishing itself in the lands around the La Suerte Biological Field Station.

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Does this increase in sightings, and newly gained photographic proof, show that tapir numbers are recovering regionally? The picture that Dr Brandt and Singleton paint is more nuanced than this. The team provides two possible explanations for the increase in numbers.

Firstly, more visitors and researchers are interested in seeing Baird’s tapir. With more people out looking for tracks and trying to see them, successful sightings were more likely. Secondly, the increase in tapir numbers could actually represent habitat loss in the surrounding region. As more of the land outside of the field station is turned over to agriculture, tapir populations are forced to move elsewhere for refuge. Instead of showing that tapir populations are naturally increasing, the team’s results could show that tapirs are merely escaping from their destroyed habitats to the only available land, protected within the field station.

The work carried out by Dr Brandt and Singleton is critically important – not only for tapir conservation but also for increasing our understanding of the overall state of natural habitats in the region. Because Baird’s tapirs are an important part of the local ecosystem, their population numbers can give us a fuller picture of overall ecosystem health.

As the expansion of industrialised agriculture destroys precious habitats, animals are forced to find the only refuge they can. The team’s work highlights the need for better monitoring and evaluation of agriculture in the region. With better land-use and conservation practices, we could ensure the survival of the charismatic Baird’s tapir.

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This SciPod is a summary of ‘Record of Baird’s tapir Tapirus bairdii at the La Suerte Biological Field Station in the Caribbean lowlands of Costa Rica’, in *PeerJ Preprints*. [doi.org/10.7287/peerj.preprints.27128v1](https://doi.org/10.7287/peerj.preprints.27128v1)

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