

After speaking to a retired veterinary surgeon who maintains a herd of the ponies, Zoe learned that there is "...a high level of homozygosity in Exmoors (about 46%) but there are no known hereditary diseases amongst them." She was also informed "...that feral sheep populations on Scottish islands (e.g. Soay, part of St. Kilda) seem perfectly healthy with the introduction of one new ram per community every second generation. I know that on Shetland the ponies have a stallion taken round the islands (by rowing boat!) for breeding. This is probably a better exercise with which to compare tapir populations than the breeding of sheep due to the genetic similarity between horses and tapirs. Perhaps the introduction of traveling entries is the answer, whereby captive raised tapirs are taken to visit isolated populations." Indeed, translocations may be called for in many of the currently fragmented tapir populations. But first, we must know which ones truly need it and in what order of priority. This is not a simple question of genetic diversity; it involves serious health issues as well. Also, warns Anders, "...care should be taken in translocation, to avoid outbreeding depression, which is analogous to inbreeding depres-

sion and happens because the introduced genes may disrupt adaptive gene sequences in the [fragmented population's] genome."

To end in a more positive note, Anders concludes that "there are many other things we can do with a bunch of feces. Lots of information related to the ecology and demography of a species is nowadays obtained through genetic studies. Therefore, I remain convinced that it can be a useful tool for the monitoring of populations."

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#### **Reference on grey wolves (thanks to Dr. H. Beck):**

Leonard, J. A., C. Vila, and R. Wayne. 2005. *Legacy lost: genetic variability and population size of extirpated US grey wolves* (*Canis lupus*). *Molecular Ecology* 14(1): 9-17.

## News from the Field

### **BRAZIL**

## **The Influence of Large Herbivores on Neotropical Forests**

*By Patricia Medici*

The project "Influence of Large Herbivores on Neotropical Forests" is a coordinated research initiative of the IUCN/SSC Tapir Specialist Group (TSG) that is being carried out in five countries of Latin America: El Rey National Park in Argentina, Morro do Diabo State Park in Brazil, Los Nevados National Park in Colombia, Corcovado National Park in Costa Rica, and Los Amigos Ecological Station in Peru. The coordinators of the project – Silvia Chalukian (Argentina), Patricia Medici (Brazil), Diego Lizcano (Colombia), Charles Foerster (Costa Rica), and Harald Beck (Peru) – are all members of the TSG. The primary goal of this project is to describe the influence large herbivores (tapirs, peccaries and deer)

exert on shaping and maintaining the understory plant communities of five different Neotropical ecosystems in Argentina, Brazil, Colombia, Costa Rica and Peru, and provide evidence that these animals are vital to the health of tropical forests and that more efforts should be made for their protection. Specifically, the main objective of the study is to examine how the removal of large herbivores will affect the physical structure and floristic diversity of the understory plant communities in primary and secondary forest habitats at each site. In order to simulate the removal of large herbivores from the forests (low densities or local extinction), we constructed exclosures to prevent them from foraging on vegetation in selected areas. Data has been gathered on different variables to describe structural and floristic changes in the plant communities over time.

The Brazilian component of the project – The Influence of Large Herbivores on the Atlantic Forest of Morro do Diabo State Park, São Paulo State, Brazil – was established in July 2004. The ecosystem under study in Brazil is the Atlantic Rainforest, and the species targeted are Lowland tapir (*Tapirus terrestris*), red brocket deer (*Mazama americana*), gray brocket deer (*Mazama gouazoubira*), white-lipped peccary (*Tayassu pecari*), and collared peccary (*Tayassu*



**View of one of the enclosure plots.**  
**Credit Patrícia Medici**

*tajacu*). The funding for this part of the project, as well as for the Costa Rican component, came from the Houston Zoo Inc.

The materials used for the construction of the enclosure plots in Morro do Diabo State Park were wooden fence posts, wire chicken fence, and plastic ties to attach the fence to the posts. Fifty (50) enclosures were constructed along transects in two different habitat types found in Morro do Diabo State Park: 25 enclosures in secondary forest and 25 in mature forest. The distance between enclosures was 50 meters, and



**View of one of the enclosure plots.**  
**Credit Patrícia Medici**

control plots (1x4 m) were established 10 meters to the right from each enclosure. Each enclosure measures 3x6 meters, with a height of 1 meter. A 20 cm high gap was left at the bottom of the barrier to allow access to smaller animals such as agouti, armadillo, coati etc. The 1x4 m sampling area in the center of the enclosure was divided into four 1x1 m quadrants. The outer 1 m wide buffer zone was not sampled because the vegetation may be browsed from outside the enclosure. Also, this vegetation is subjected to influences of investigator traffic. Plots are visited twice monthly in order to inspect for damage and any necessary repairs.

For each enclosure and control plot, two 1x1 m quadrants within the 1x4 m sampling area were chosen randomly. As a result, 2 m<sup>2</sup> of forest were sampled in each enclosure and control plot. All plants  $\geq$  than 10 cm high and with diameter  $\leq$  5 cm were measured (height and diameter), separated into morpho-species and marked with PVC tags. Each plant was assigned a reference number for analysis. Plants with height < 10 cm (considered to be seedlings) were counted. Horizontal cover was assessed through the needle method: a wooden stick is vertically placed in the geometrical center of each 1x1 m quadrant and the number of leaves touching the stick is counted.

The first measurements (baseline data) were collected between August and October 2004, and reflect the diversity and structure found within the enclosures and control plots right after their construction. For the mature forest, a total of 2,456 plants were marked and measured, including 1,292 plants in the enclosure plots (25.84 plants/m<sup>2</sup>) and 1,164 plants in the control plots (23.28 plants/m<sup>2</sup>). The number of morpho-species in the mature forest was 162, and 3,492 seedlings were counted. For the secondary forest, a total of 1,400 plants were marked and measured, including 788 plants in the enclosure plots (15.76 plants/m<sup>2</sup>) and 612 plants in the control plots (12.24 plants/m<sup>2</sup>). The number of morpho-species in the secondary forest was 88, and 1,258 seedlings were counted.

After the initial data collection, species-area curves were drawn for both mature and secondary forest in order to carry out a preliminary assessment of our



**The Houston Zoo Inc. is the major donor of the Brazilian component of this project.**



The 20-cm high gap left at the bottom of the enclosure barrier to allow access to smaller animals.  
Credit Patrícia Medici

ability to capture the diversity of plants in the areas. Both curves seemed to have stabilized and reached an asymptote. As we move forward with the subsequent data collections, more sophisticated statistical analysis will be conducted in order to determine this ability.

The same sampling quadrants and plants will be measured twice a year, at the end of the wet season (April-May) and at the end of the dry season (September-October). At the end of the last data collection period (April-May 2009) a decision will be made



Researchers taking measurements and collecting baseline data.  
Credit Patrícia Medici

whether to continue the project or not based on the results obtained by then.

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## **Tapir Extinction in the Atlantic Forests Between the Rio de Contas and the Rio Paraguaçu**

*By Kevin Fleisher*

I regret to report that tapirs (*Tapirus terrestris*) are extinct in the Atlantic Forest remnants between the Rio de Contas and the Rio Paraguaçu, in Bahia State, Brazil, with the only memory of their existence being two place names on the map – a town named Poço d'Anta between Jequié and Jaguaquara and a rural area west of Taperoá called Cabeça d'Anta. Over the past seven years I have worked exploring what is left of the Atlantic Forest surrounding the coastal town of Ituberá, in a region of southern Bahia known as the Costa do Dendê (Palm Oil Coast). The focus of my dissertation research is to try to identify the factors that determine the distribution and relative abundance of medium and large mammals in this agro-forestry landscape in order to understand how human resource use affect the long-term persistence of these species. Early on in the study I found out that tapirs were extinct, but the when and why of this extinction only became clear after studying historical documents and interviewing old farmers who lived before the large-scale deforestation and landscape-transforming events of the 1950/60s.

### **History of Land Use and Hunting in Ituberá**

There were two distinct peoples living in the Ituberá region when the Portuguese settled here in the mid-16th century: the Tupiniquins, who lived in villages