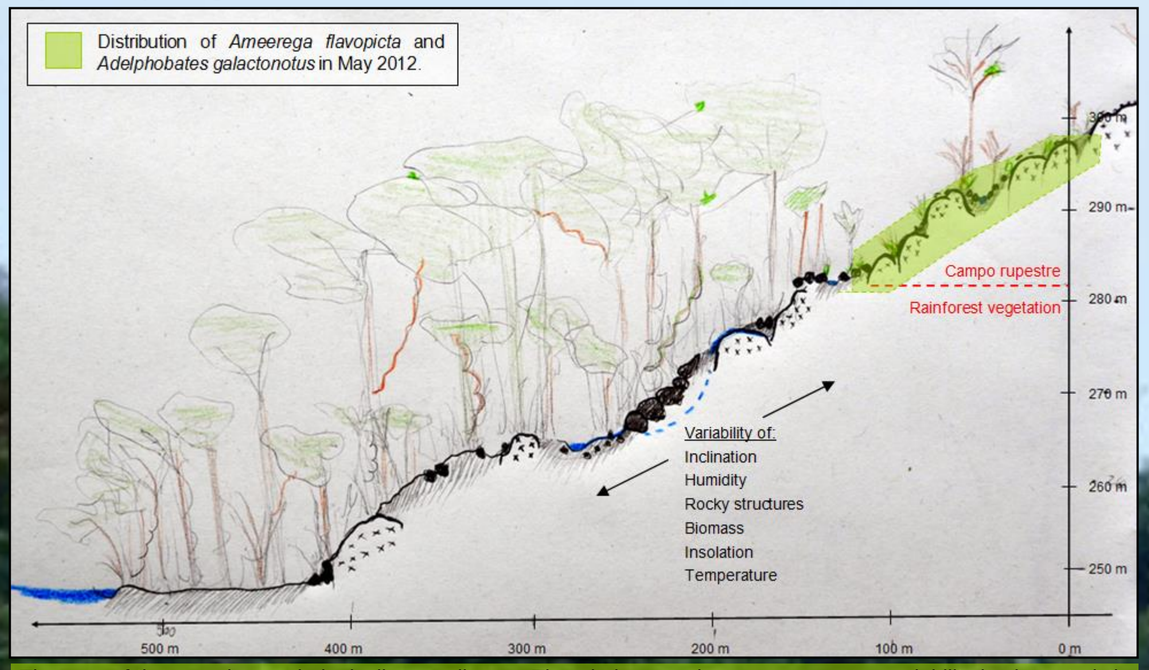
Practical field-work at the RPPN Rio Cristalino
02.05. - 02.06.2012

Distribution of Poison Dart Frogs in the Area of the Serra Trail in Relation to the Physical Structure of the Landscape

Fig. 1: *Ameerega flavopicta*, *Adelphobates galactonotus* and *A. castaneoticus* at the Serra Trail of the Rio Cristalino RPPN; photographed in May 2012.

The main goal of the stay at the RPPN Rio Cristalino was the observation of the different species of poison frogs common in the area of the Serra Trail and to have a look at the distribution of these species in the area. Furthermore, the plan was to make a regional characterization of the special kind of landscape and to become an impression of the biological richness. Especially a morphological and a biological characterization of the area should be brought in connection with the distribution of the different species of poisonous frogs there.
Altogether this small work was thought to be a basis for a further explanation,why these poisonous frogs live only in this relatively small area of the RPPN.

Fig. 2: Morphological structure of the serra

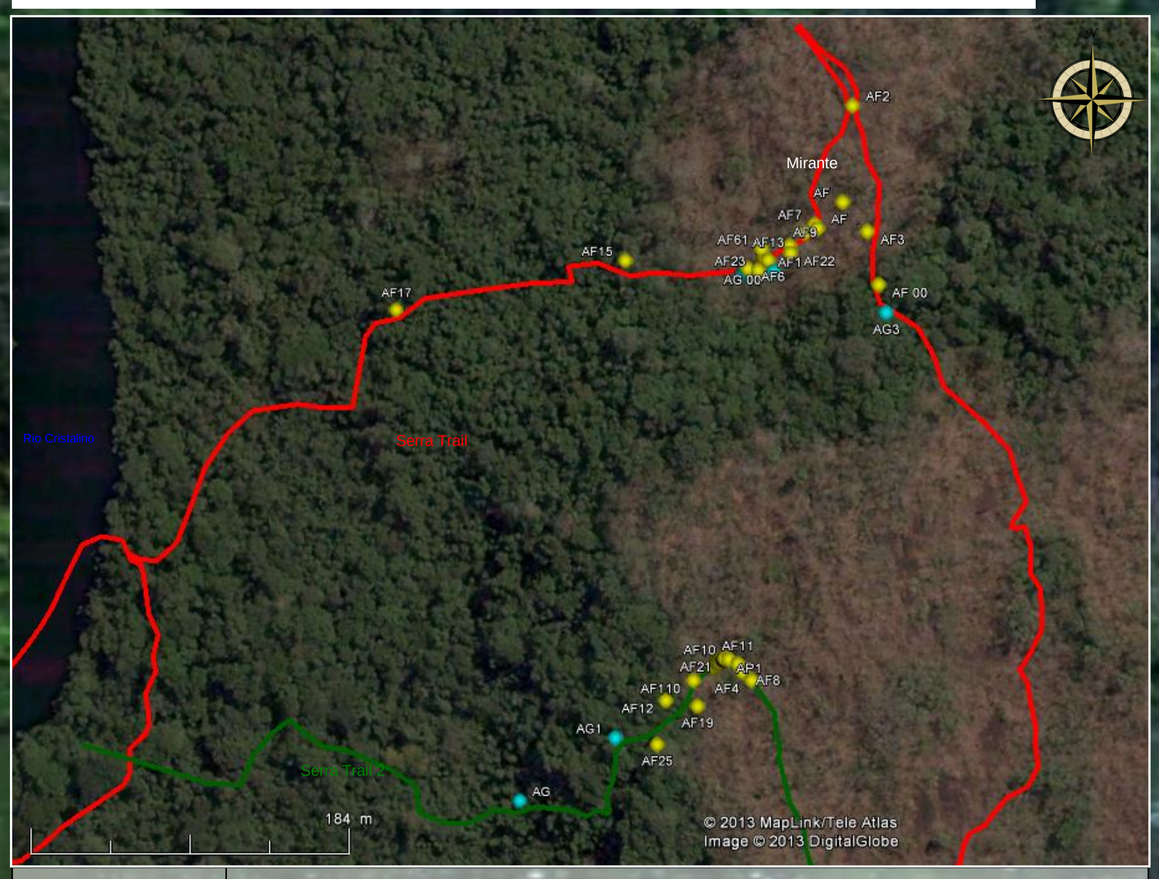


The area of the serra is morphologically very diverse. The whole area shows an enormous variability in characteristic aspects like the inclination, rocky structures on the surface, insolation and the temperature (Fig. 4). These variability seems to form a mosaic kind of landscape which could be an explanation for the high biological diversity of the area, so that for example in a relatively small area three different species of poison frogs are common and different plant formations are established like the vegetation of the so called “campo rupestre” on the higher ridges (Fig. 3).

Fig. 3: Characteristic shape of the landscape on the top of the serra

The pictures were shot on one of the highest places of the serra in the RPPN at the beginning of the dry season in May 2012. Characteristic for this so called „campo rupestre“ formation is the high amount of rocky structures on the surface. This leads to dry conditions in the area because water runs off the rocks and cannot be retained by any thick layer of soil.
The vegetation is adapted to these dry conditions: In relation to the lower areas the vegetation is not that dense and characterized by ohter species, which are adapted to water deficiency. Many plants in this area have for example very thick leaves, or enlarged parts which are used to stock water. Many trees loose their leaves in the dry season which is also an adaption to these dry conditions on the top. The open vegetation also leads to higher temperatures in these areas (Fig. 4).
(Plants at the bottom from left to right: *Ananas ananassoides,* Orchidaceae, Bromeliacea, *Clusia wedelliana)*

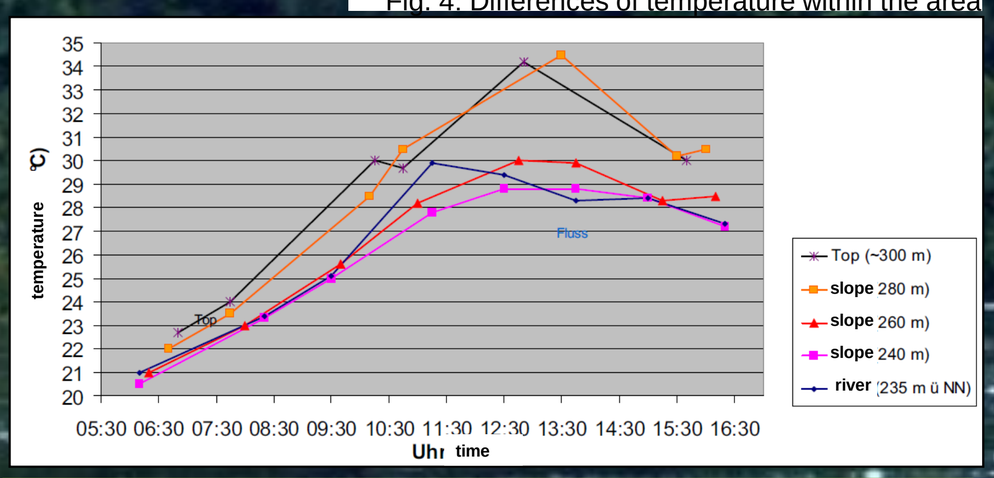
Fig. 5: Distribution of *A. galactonotus, A. castaneoticus* and *A. flavopicta*



AF	Individual of *Ameerega flavopicta*
AG	Individual of *Adelphobates galactonotus*
AC	*Adelphobates castaneoticus* (was only observed once at Serra Trail 2 at the edge of the rocky plateau were *A. flavopicta* was also common)

Three different species of poison frogs were observed during the 4 weeks stay in the area. Individuals of *Ameerega flavopicta* were observed nearly all day. *Adelphobates galactonotus* wasn’t that common. Only on 6 days an individual of *Adelphobates galactonotus* had been found in the surrounding of the trails. *A. castaneoticus* was only seen once during the whole time.
The distribution of the two frequently seen species *Ameerega flavopicta* and *Adelphobates galactonotus* was astonishing (map). The individuals of *A. flavopicta* and *A. galactonotus* were only distributed in a very small area between 40 and 55 m above the river level which seems to go along with a special kind of landscape structure: This is an area were the rainforest vegetations changes to the more open campo rupestre vegetation. On the highest ridges of the serra no poisonous frog has been found during the 4 weeks (Fig. 2).

Fig. 4: Differences of temperature within the area



Differences in temperatures during a single day on attitutes between 235 m (river) and 300 m (top) in the area of the serra. On this measurement, the temperatures on the higher places are around 4 to 5 °C higher than on the river level. This seems to be a basis for the ecological and biological differences within the area for example in relation to the distribution of different frog species (Fig. 5) or plant formations.

Altogether it has been shown that the area of the serra is especially in relation to vegetation (fig. 3.), the morphology (fig. 2.) and the temperature within the area (fig. 4.) very diverse, which may be an explanation for the biological richness of the area. Within this mosaic kind of landscape in the transitional period between rainy season and dry season *A. flavopicta* and *A. galactonotus* seem to occupy a very small area. So this observations may be a hint for the explanation where the poison frogs stay during the main dry season because in the main dry season nearly no poison frog can be found in the area of the serra, while in rainy season the frogs are distributed in the whole area and not only in the observed small patch, were the rainforest vegetations changes and the vegetation of the campo rupestre becomes gradually dominant.

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