



# Practical field-work at the RPPN Rio Cristalino

## Distribution and biology of Poison Dart Frogs in the rain season



The four species of Poison dart frogs can all be found at the Rio Cristalino. They are all from the Family of the Dendrobatidae. In contrast to most other anurans they are day active. Many of these frogs are brightly colored. These colors include yellow and orange, warning colors to show predators that they are poisonous. They are between two and five centimeter large. Some native tribes used the frogs to poison their darts of the blowgun. To do this they rubbed the darts over the skin of the frogs. The toxicity varies between species, even different population, because the frogs can't produce the poison on their own, they have to feed on poison insects and then change and enrich the poison on their skin. The Poison dart frogs are not active poisonous. They can't inject it, like snakes. They have the poison on their skins, if a predator tries to eat the frog it tastes very bad and is disgorged again.



Fig. 1: on the right the card of the RPPN with the trail system. On the left the research area where you have the highest chance to find the frogs.

My research question was if the different frogs, have different distribution during the dry season and the rain season and whether this is influenced by abiotic or biotic factors. I had the distribution data from a former student of the University of Tübingen, who observed the frogs only in an small belt during the dry season.

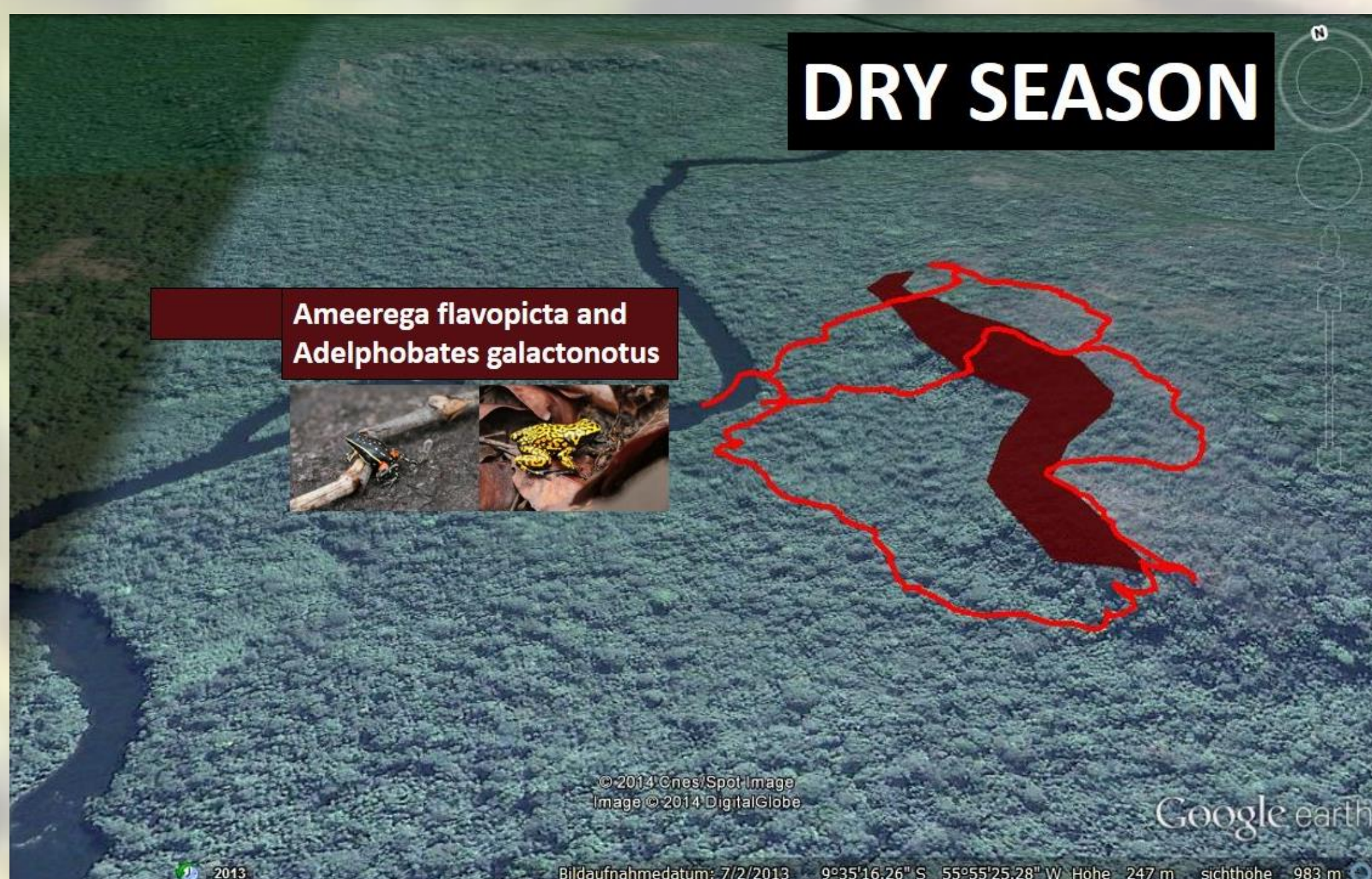


Fig. 2: The area where Ameerega flavopicta and Adelphobates galactonotus was found in the dry season. A thin belt of only 50 meters in altitude.

During the time at Rio Cristalino the whole cycle of the frogs could be observed. The dart poison frogs don't put their eggs directly into the water, they put them on the forest floor. When hatching the eggs the tadpoles are transported on the back of the parents to the water. Some parents even protect their tadpoles. Ameerega flavopicta puts the tadpoles in puddles on the granite plateau. Often they dry out due to high temperatures and the tadpoles die.



Fig. 3: Live cycle form Ameerega flavopicta. Small tadpoles growing, then the metamorphoses (development of legs, green cycle) starts to the small frog (red cycle).

### Acknowledgements

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Adelphobates galactonotus is the yellow beauty of the Rio Cristalino. This coloration type is endemic, means you only can see it here.

### Different coloration of Individuals

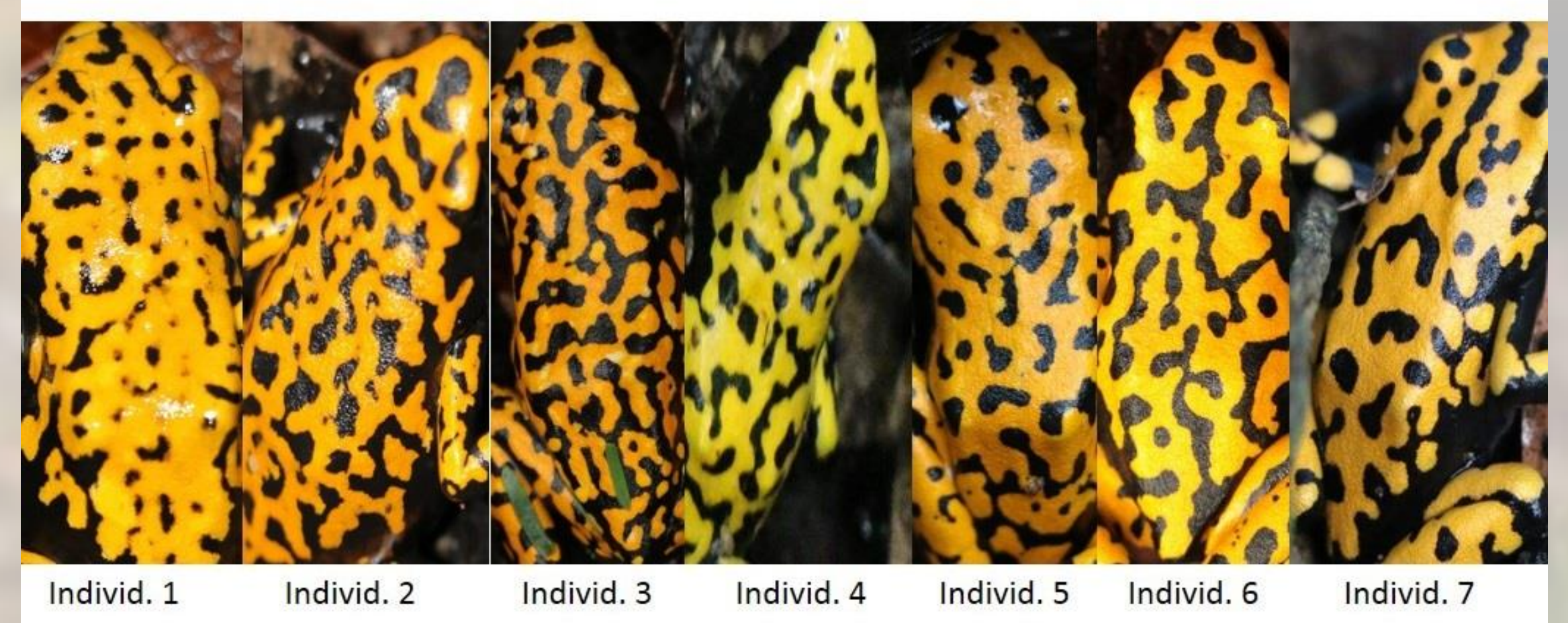


Fig. 4: Every individual of Adelphobates galactonotus has its specific coloration pattern. This is important for estimating the population size or to get the movement of the frogs. Its even possible to give names to the frogs.

After making a relief card analyzing the soil type and mark the change in vegetation (Fig. 5). Between the granite plateaus there is a dark, organic soil, which may hold more water and provides moisture to the frogs during the dry season.

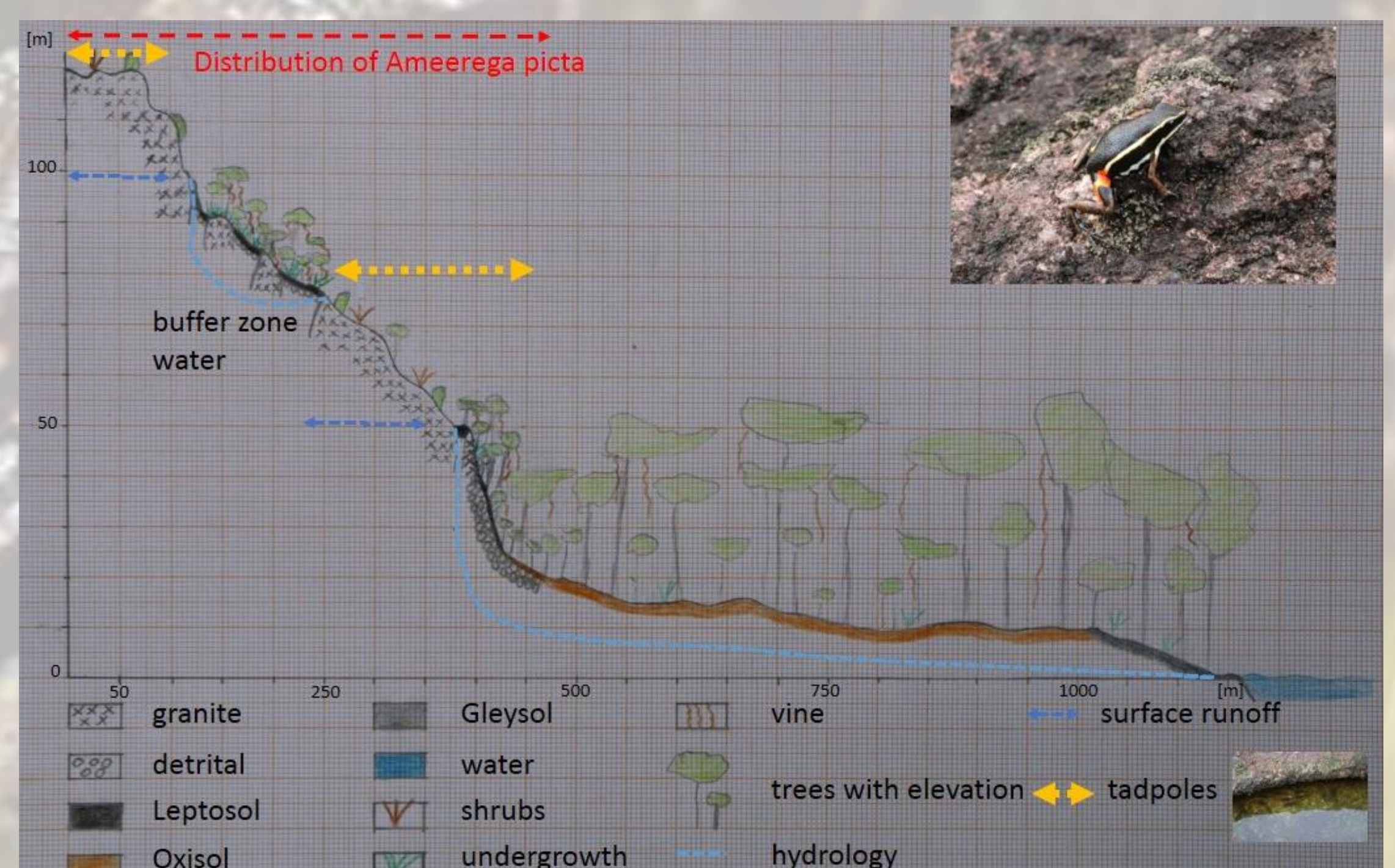


Fig. 5: Relief card with soil types, vegetation change and hydrology. Ameerega picta and Ameerega flavopicta, on the other riverside, can be found on top of the granite plateau.

Clear changes in distribution during the dry season (brown – both species) and rain season. Ameerega flavopicta (orange) moves up on the granite plateau and Adelphobates galactonotus spreads over the whole area.

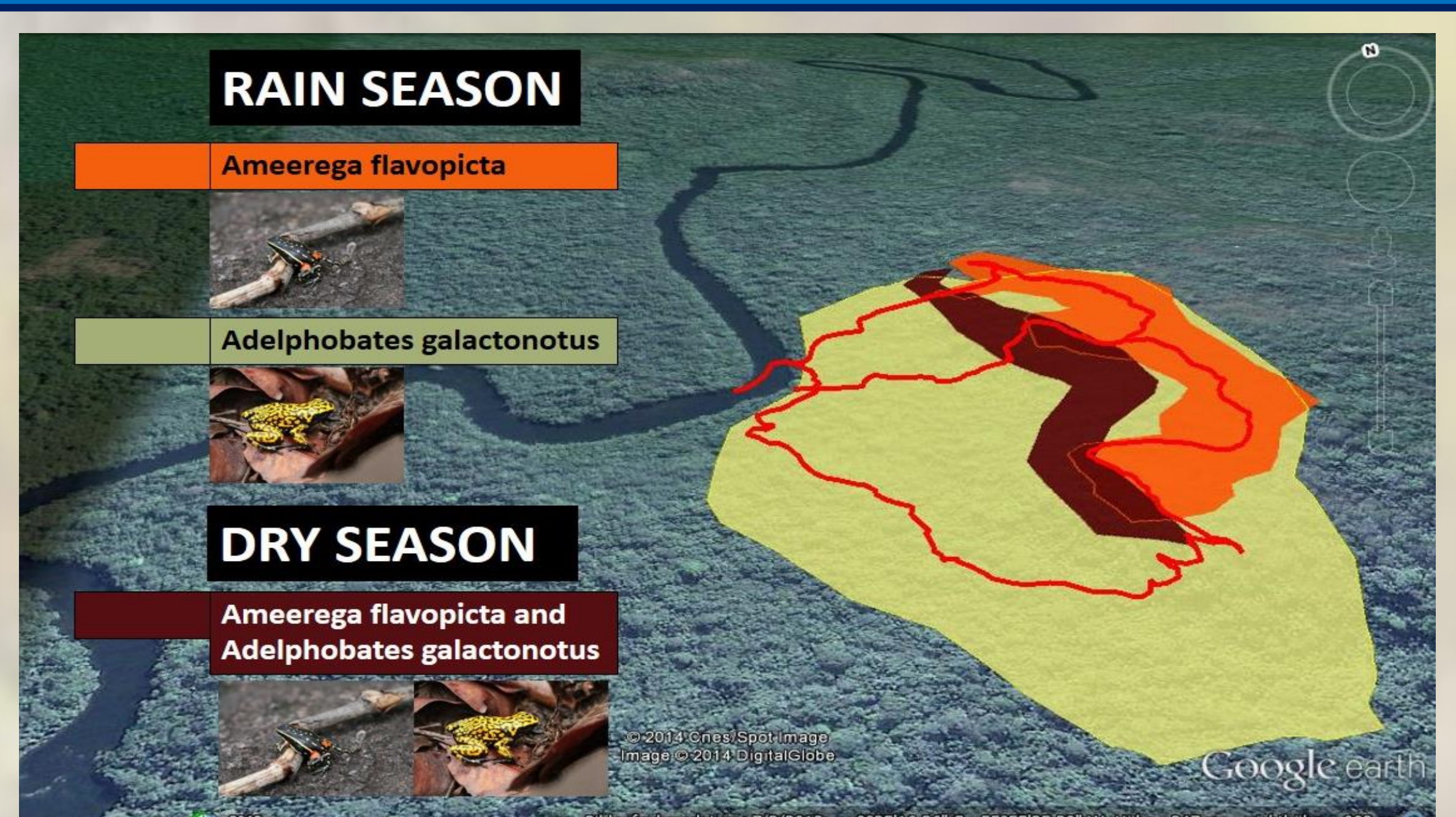


Fig. 6: Distribution during rain season and dry season.

