

The lonely stripies

Effect of the habitat fragmentation on the Grévy's zebra population genetic structure

Leili Khalatbari

Africa is famous for having incredible wildlife. Thinking about the wildlife in Africa, the first image that comes to mind is a vast area with herds of herbivores grazing and lions resting under the tree shadows, waiting for the proper moment to start hunting. Zebras are one of the well-known herbivores of Africa due to their unique black and white patterns. There are three species of zebras: plains zebra, mountain zebra and Grévy's zebra. The plains and mountain zebras are more horse-like while the Grévy's zebra is more similar to the asses. Plains zebras are the most common ones, distributed from East to south east of Africa. Mountain zebras are living only in the south east of Africa. The Grévy's zebra are living in west of Africa, particularly Ethiopia and Somalia and are listed as endangered in the IUCN red list.

Unfortunately, like many other mammals, Grévy's zebras are threatened by human activities such as land use changing, overgrazing and hunting all around the world. These changes can result in reducing the population of the species to the extent of extinction. In addition, habitat fragmentation is another threat for survival of wild life.

Separating two populations of a species will result in loosing the genetic diversity by stopping the gene flow between them. Being very similar in the genetic level will cause problems like inbreeding, being more fragile to diseases and decreasing adaptation to changes.

In this study I investigated the similarity of two populations of Grévy's zebras in Alledeghi Wildlife Refuge, northern Ethiopia, and Sarite protected area in southern Ethiopia, close to Kenya. These populations are separated from each other by human settlements and it seems that there is no connection between them.

We collected fecal samples in the Grévy's zebra's habitat, a sampling that causes minor disturbance on the target species and its habitat. DNA was extracted from the samples. Mitochondrial and nuclear DNA were amplified and compared with available online data to indicate how different/similar the populations are. The results show that the northern population is genetically separated from the others, while the southern population shares their DNA setup with the Kenyan population. Hopefully this may result in investing more conservation effort for the northern population to save their unique gene materials.

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Supervisors: Susanne Kerje and Albano Gonçalo Beja Pereira