Project Update: August 2023

Status of the project

All activities planned so far have been carried out. Four sampling campaigns were carried out in which water and faecal from wild animal samples were taken, as well as monitoring the diversity of large and medium-sized mammals with camera traps. In addition, a workshop was held for the community of Villa Serrana regarding the environmental problem. We are currently analysing the information obtained so far and carrying out a historical analysis of land use. Monitoring of water, faeces and mammals will continue, and another workshop will be held soon with the community and the school of Villa Serrana.

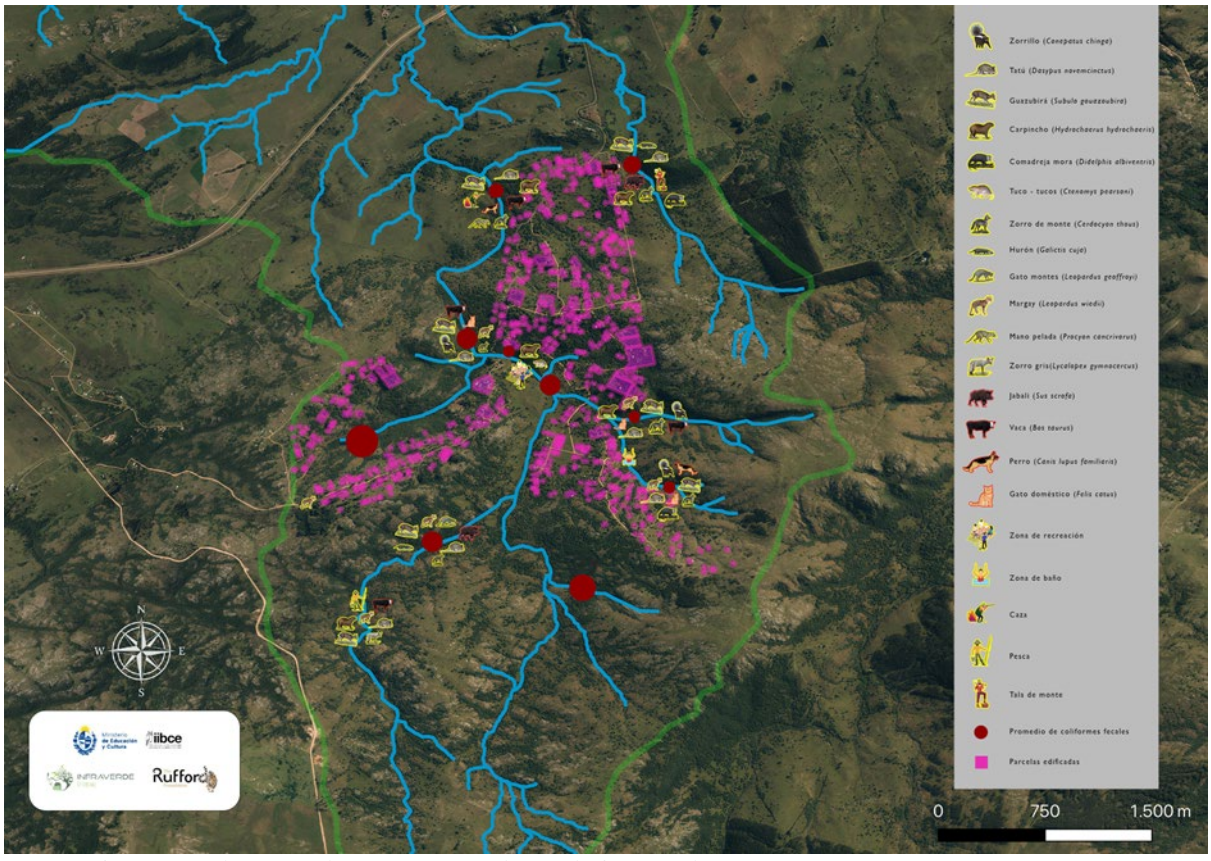
Results

In each sampling campaign, 10 sites were monitored in the upper, middle, and lower basin of Arroyo Los Chanchos. At each site, water column samples were taken, abiotic variables were measured, wildlife faeces were collected, and a camera trap was installed to record mammal richness. The results obtained indicate that in the months corresponding to the low season (summer) the abundance of faecal coliforms was below the limit value indicated by the regulations for Level 2 watercourses (<1000 CFU/100ml). In high season (winter and spring) there was a significant increase in the abundance of faecal coliforms exceeding the value allowed by the regulations at the sites nearest to the urbanisation. In addition, the presence of the pathogenic Shiga Toxin producing *Escherichia coli* (STEC) variant was detected in water samples from sites located in the upper, middle, and lower basin. However, the presence of pathogenic bacteria was not related to the abundance of faecal coliforms but was related to the proximity to the most populated areas. STEC was also detected in faeces of wild mammals, being more frequent in guazubirá (*Mazama gouazoubira*) and wild boar (*Sus scrofa*) adjacent to watercourses with STEC. On the other hand, 12 species were recorded in the camera traps, one of which, the margay (*Leopardus wiedii*), presents conservation problems at national and international level. The information obtained so far indicates that tourism and urbanisation have a negative impact on both water quality and species richness. In addition, the results allowed us to gain insight into the dynamics of a zoonotic pathogen from domestic waste that reaches water bodies and can be transmitted not only to wild animals, but also to domestic animals and even to humans. This information is important to consider in order to generate and implement mitigation measures in the territory to improve water quality and biodiversity conservation.

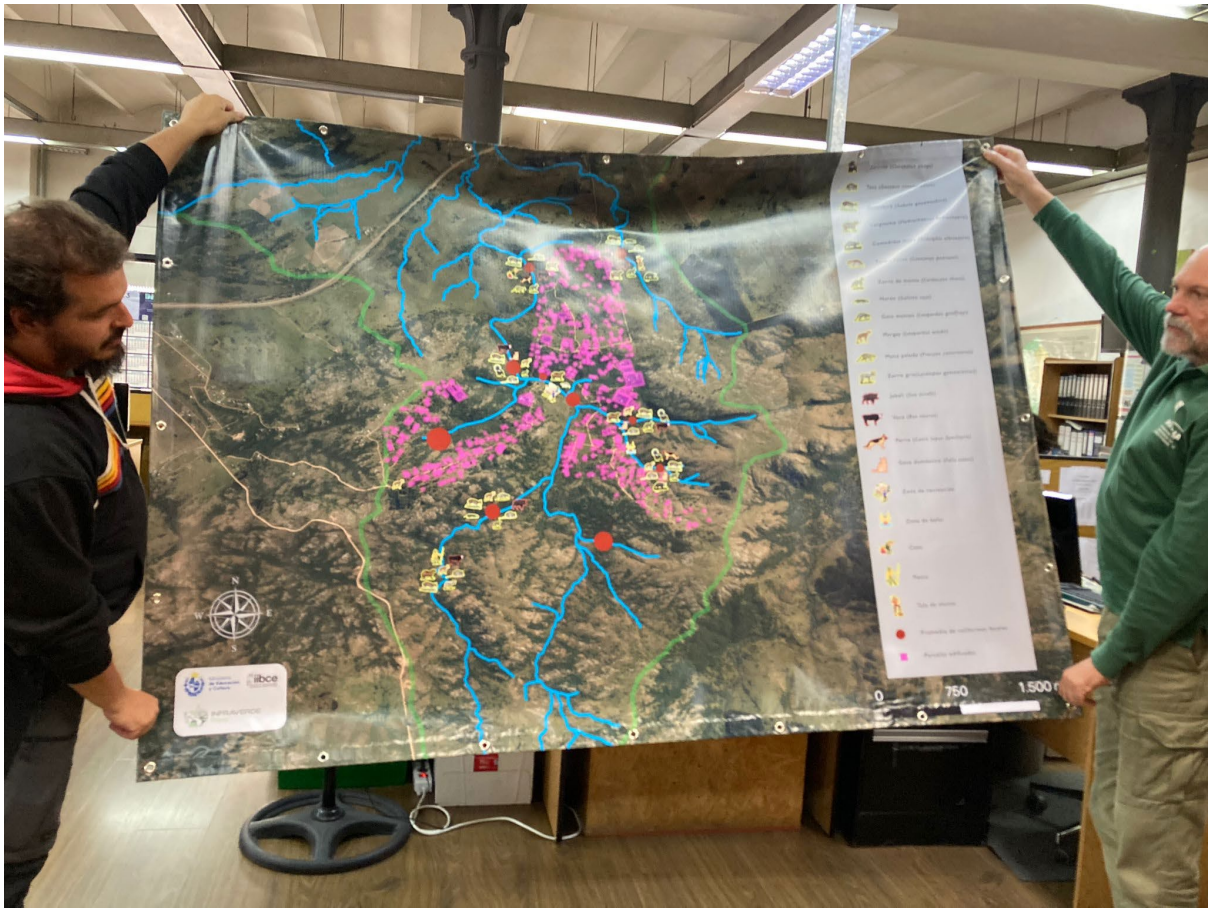
In the workshop held with the community of Villa Serrana, the present project and the results obtained so far were explained. Approximately 25 local people participated in the workshop, with whom new proposals for improving the ecosystem health of the basin were discussed. We also exchanged information on the activities carried out in the locality (hunting, recreation, bathing) and on the presence of wild animals. For this purpose, a map of the basin was made on a human scale where people marked the places where different activities were carried out and where they had sighted wild animals.

Workshop with the community of Villa Serrana exchanging information using a map.

Workshop with the community of Villa Serrana.



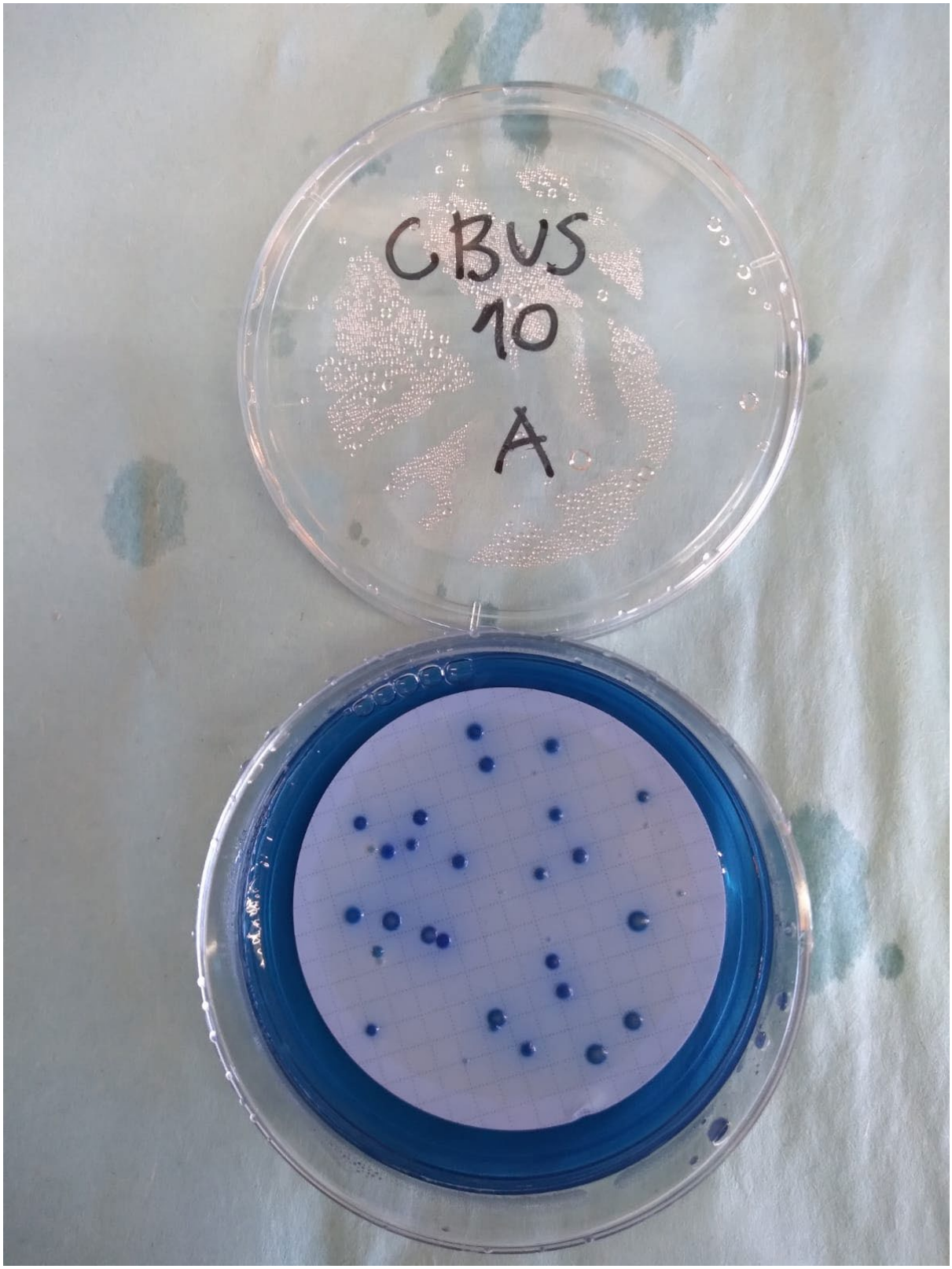
Map of the basin showing the obtained information.



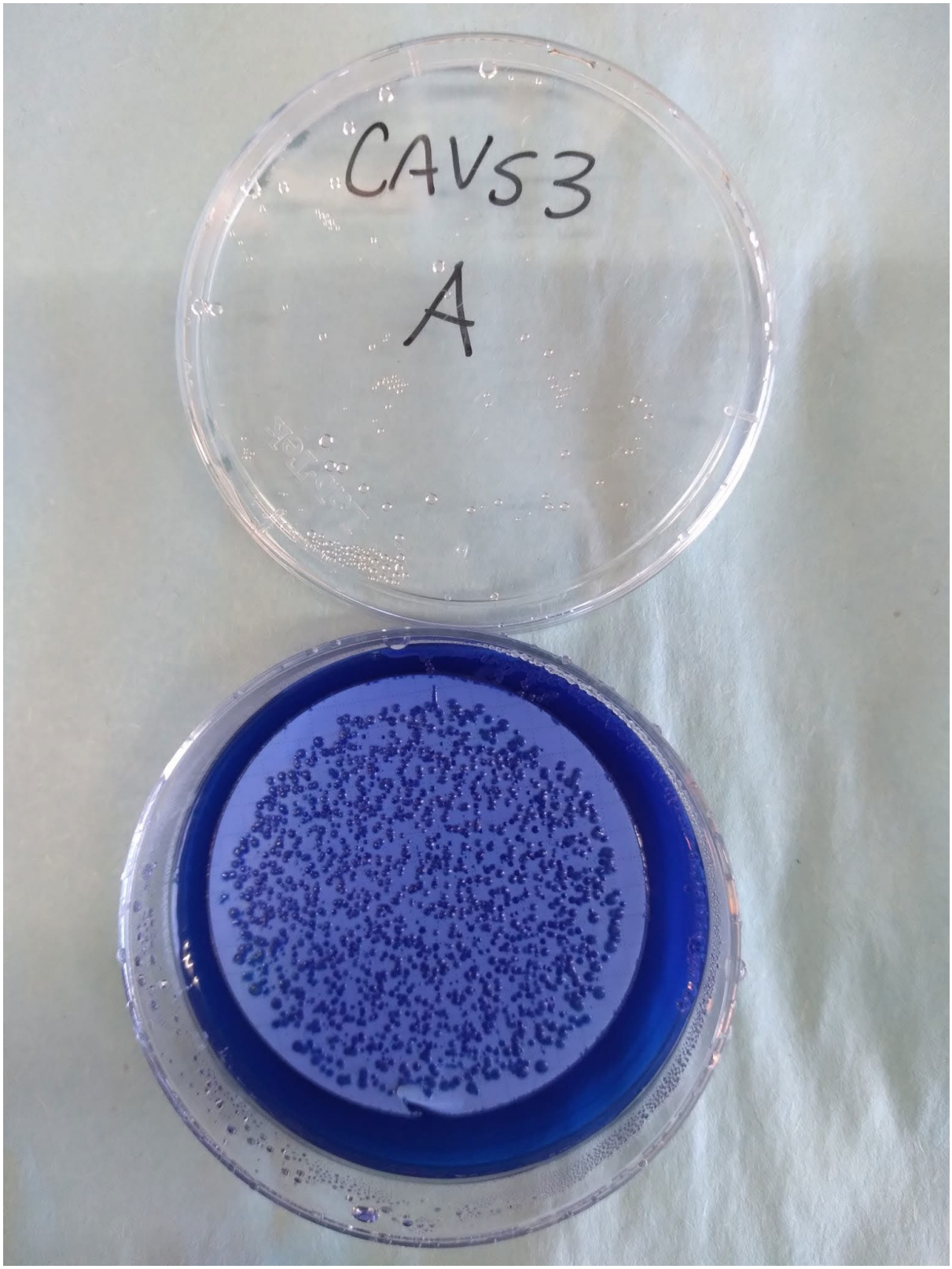
Map of the basin with the obtained information on a human scale.

Processing the water samples taken previously.

Taking water samples in a sampling campaign.



Colony-Forming Unit (CFU) of faecal coliforms (blue colonies) from a water sample.



Colony-Forming Unit (CFU) of faecal coliforms (blue colonies) from a water sample.