

IMPACT REPORT

2024



Center for Conservation in Western Asia



Background Summary

Since 2004, the Center for Conservation in Western Asia has worked with endangered mountain vipers with an emphasis on the Armenian viper (*Montivipera raddei*), which has a fragmented distribution in Armenia as well as eastern Turkey, Azerbaijan, northeastern Iraq and northwestern Iran. In order to learn proper management strategies for these rare animals the Center studied the spatial ecology (use of habitat) and habitat preferences in two distinct habitats: human modified and natural landscape. In addition, results of a genetic study on these two populations determined the need to manage the two populations as separate and proved to be a valuable starting point for a conservation strategy. Over the past decade, a tremendous amount has been learned about the natural history of the Armenian viper and other species of Mountain and Meadow viper through this Center, which in turn has been used to enlarge existing reserves as well as help establish new protected areas. For example, Khosrov Forest State Reserve and Shikahogh State Reserve boundaries in southern Armenia were enlarged and now

provide extended protected habitat for vipers as well as endangered mammals and plants. Additionally, two new protected areas, Arevik National Park and Zangezur Sanctuary, were established with help from the zoo's WildCare Institute. A long-term population monitoring of vipers and other species carried out in central Armenia has led to formal protections of the Abovyan Ridge Herpetological Preserve since 2022.

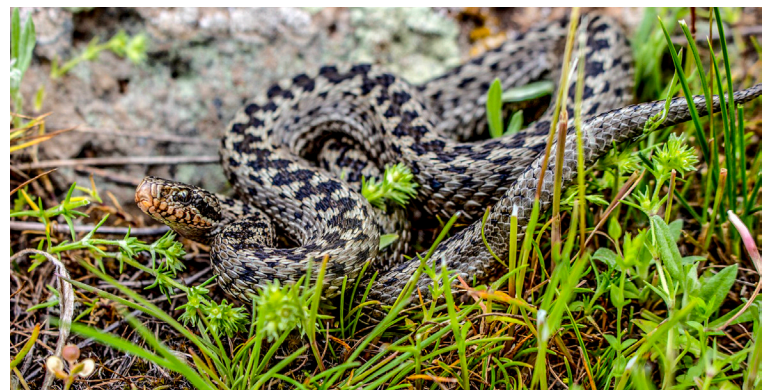
Since herpetology in Armenia, and generally in western Asia as a whole, is largely under-studied there are many areas that are lacking investigations. As of 2022, a strong emphasis of the Center has been the formal documentation of areas untouched by biologists. This is being accomplished with continued partnership from Armenian colleagues, as well as the IUCN Viper Specialist Group, Ilia State University, and the Institute for Development, Ecology, Conservation and Cooperation (IDECC). Data collected from these novel expeditions is published and disseminated for use by regional governments and the IUCN Viper Specialist Group.

This Center is also dedicated to undertaking diverse approaches in viper conservation, such as education initiatives and establishing *ex situ* assurance colonies in both Armenia and the United States. In 2007, educational materials were provided to shepherds and students in and near viper habitat, illustrating the importance of vipers in local ecosystems. In 2021 educational materials, specifically for children, were printed and offered to schools and classes in central Armenia.

The Saint Louis Zoo holds a number of mountain and meadow viper species and reproduces these species as part of a consortium with other AZA zoos. The goal of this consortium is to have sustainable *ex situ* populations of these animals to be used for educational ambassadors for western Asia.

Achievements in Armenia

In 2019 the center hosted the official opening of Armenia's first ever conservation breeding center, the Armenian Conservation Breeding Center (ACBC). This facility currently houses the three-viper species native to Armenia that are listed as threatened or endangered: Armenian viper, Armenian Steppe viper, (*Vipera eriwanensis*) and the Darevsky's viper (*Vipera darevskii*). In 2023 we funded this facility's operations that lead to a group of vipers being relocated from a mining operation.



Focusing on field expeditions, in the Spring of 2023, we lead an expedition in Armenia to further our goals of viper conservation in the Caucasus mountains. The primary goals of this trip were continuing to collect data as part of our long-term Armenian Viper population monitoring program, carry out investigations to areas that have not received any form of herpetological inventories, and meet with local collaborators to discuss a variety of projects.

The first half of this trip focused on surveying Armenian Vipers at our central field site of the Aboyvon ridge on the outskirts of the capital city, Yerevan, near the village of Kaputan. This survey work aided in adding data to a long-term population assessment gauging population abundance and trends of these endangered snakes. We processed more than a dozen vipers as well as record

specimens for two species never documented in this area, a European Toad (*Bufo stidibuntis*), as well as a Smooth Snake (*Coronella austriaca*). These finds are important for a manuscript in production, documenting the herpetological assemblage of this area. This was the first survey of the Abovyon ridge since formal protections were put into place in 2022. Future surveys comparing status before and after protection, will be vital in measuring the impact of this protection on vipers and other species. Switching gears to the mammals of the area, game cameras were placed to gauge mammal life for the second year in a row. These cameras documented notable species such as Caucasian fox.

Additionally, an expedition was conducted in the western portion of Armenia. One particular survey was of Lake Arpi National Park. This protected area is broken up into two disjunct parcels in northern Armenia. The critically endangered Darevsky's Viper is well documented in the eastern portion of this park but has never been discovered in the west. In an attempt

to locate a new population of this species we scouted appropriate habitat and then surveyed multiple areas over the course of the next few days. Upon surveying our second point we found a Darevsky's Viper. This record is more than 25 km away from the nearest documented locality and is a major find for the conservation management of this species. This range extension will be formally published in the peer reviewed journal, *Herpetological Review*. We uncovered a handful of other species, and as this was the first formal Herpetological survey in the area, all of the finds are novel and worthy of a larger manuscript that is currently being produced.

Finally, we began funding field conservation effort by the IUCN Viper Specialist Group and IDECC, in collaboration with Ilia State University in the Republic of Georgia. These efforts are focused on meadow viper species in western Georgia and investigating distributions for IUCN status assessments. This work was funded entirely by donations acquired by the WildCare Institute.





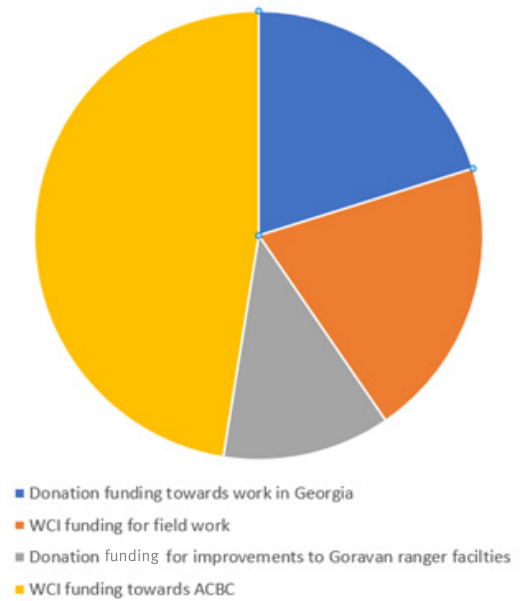
Focal Regions and Species

The focal country of the Center for Conservation in Western Asia is Armenia. This small country is home to 54 species of reptiles and amphibians, with 11 of those species listed as endangered. The work we have carried out with these species acts as a model for future species and possibly other regions of western Asia. Other countries in this neighborhood of the world are facing similar issues impacting endangered reptiles and amphibians (i.e. mining, road construction, habitat destruction). The mountain vipers, the group of snakes that includes Armenian vipers, includes eight species of which more than half are at risk of extinction. Our hope is that while our work in Armenia will continue, we can also expand to other countries using this existing work as a model for conserving other species. This would expand the scope of our work while increasing impact for endangered species. We also hope to build capacity through strong collaborations with institutions and scientists of various countries in western Asia.

2023 Center Budget

In 2023 this Center's work was funded through the WildCare Institute funding donations. \$12,782 was utilized for the operations of the ACBC as well as field expeditions. \$7,000 of donation funding was used to upgrade habitats of the ACBC ,and provide improved facilities for rangers of the Goravan state sanctuary in Armenia. We also provided funding for field efforts in Georgia.

2023 center funding



Future

We look at the Center for Conservation in Western Asia as a “spoked wheel;” the ACBC, being the center of the wheel, with the four spokes being field research, education, collaborations and capacity building. In the next year, we have plans to execute a strategic plan for the ACBC, in order to maximize impact and solidify focus. There are several potential localities needing investigation and field surveys in the near future. We will focus on piecing together gaps in range maps of the Armenian viper and other imperiled reptile species to see if there are any undocumented areas that have these rare animals. We are also hoping to lead an expedition to southern Armenia where there are accounts of what is possibly an undescribed species of viper. As western Asia is a large and complex region, we look forward to funding opportunities that will allow us to take what we have learned in Armenia and continue to apply this model of conservation to mountain and meadow vipers in Georgia and other countries in the region.