

1TREELLION'S PLANTING IN ARMENIA



RESTORING LOCAL FORESTS - CREATING GLOBAL IMPACTS

A PROPOSAL BY
**1TREELLION GLOBAL
FUNDS**

PROJECT
**60K TREES IN
ARMENIA**

Foundation for the Preservation of Wildlife and Cultural Assets

Background

Post-soviet years, when Armenia was undergoing an energy crisis, forested areas have been destroyed. Forest fires and massive illegal logging were the main reasons for this destruction. In these years the inhabitants of the adjacent villages cut huge amounts of trees to use for heating purposes during cold winters. Until now many villagers prevailed on the attitude of logging trees due to poverty and lack of gasification.



The mission is to protect and restore Armenia's unique biodiversity by reforesting those areas. Raise public awareness for nature conservation and environmental issues. Working in the crossways of habitat restoration, wildlife protection, and sustainable community development, we are committed to advocating respect and responsibility for the natural wealth and cultural heritage.

Towards conserving biodiversity and the establishment of sustainable livelihoods, 1 treellion with our local partner have a goal to restore several plots of highly degraded sparse forests in the territory of the Caucasus Wildlife Refuge (CWR), the first privately protected biodiversity hotspot area South Caucasus which encompasses around 30,000 hectares. Being the habitat of a number of southern Caucasian species, the CWR territory is an area of crucial importance buffering Khosrov Forest State Reserve (IUCN Ia category), as well as it serves as a migratory corridor for the wildlife from East to West of Armenian borders.

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Hitting and Achieving Project's Goals

The overall objective is to restore an important ecological area, planting 60,000 trees to contribute to efficient biodiversity protection in Armenia by improving the conservation status of flora and fauna in the reserve's previously unsustainably managed buffer zones and wildlife migration corridors.

The targeted areas for the reforestation are rural community lands leased by our local partners and integrated into the privately protected area Foundation manages. These lands were subject to uncontrolled grazing and use. Currently, taken under conservation, there is a need of active restoration, as due to the climate change effects many watersheds in the area are drying up, thus the natural regeneration of sparse forests does not happen.

Goals

- Ecosystem restoration – Restore 30,000 ha of degraded forest lands to conserve and restore biodiversity by creating an ecological corridor for wildlife.
- Mitigation of the human-wildlife conflict by planting wild-fruit trees and providing enough nutrition for wildlife.
- Community support and awareness raising– by engaging local communities in tree planting activities, our objective is to provide seasonal working opportunities and change the perception of locals towards nature.



Action Plan



Biodiversity conservation

By restoring this corridor of the forest, and connecting the land we enable biodiversity restoration. This project is an ongoing project, and from 2011 to 2017, due to permanent monitoring of species, a significant increase in the numbers of Armenian red-listed species was recorded, among them Bezoar goats, Brown bears, Bearded Vultures, Golden Eagles, Griffon Vultures and Schneider's scink. Grey wolves, red foxes, hares and martens are captured on cameras on a regular basis.

In 2013, the first time in the last 15 years, those cameras captured footage of the endangered Caucasian leopard, the numbers of which have decreased drastically since Soviet times. According to the IUCN Red list, there are as few as 8 to 13 individuals living in the territory of Armenia.

Community Development

We rely on the active involvement of the local communities that strongly support our work in the field of nature conservation, in addition to the permanent monitoring of the whole area. As a result of this cooperation, a number of permanent and seasonal workplaces are opened in communities, the ecotourism infrastructure is being developed and small & medium entrepreneurship are steadily promoted.

The team is composed of locals-the field rangers, eco-tourism guides, cooks and service personnel are all residents of the adjacent communities. The villagers are permanently supplying the Eco-Center with locally produced food and drinks, which helps the locals to generate additional income and promotes organic farming in villages.

The third component of the development is the rehabilitation and renovation of the community infrastructure, such as improving the water supply network, providing street lighting with energy-efficient LED lamps, installing solar panels and renovating/ rebuilding the educational institutions of the villages.

Action Plan - Cont.

Innovation for risk mitigation

The hi-tech trap cameras located in the whole territory ensure not only high resolution images and videos of elusive species, but also provide live broadcast through 24/7 remote monitoring.

High resolution drones are used to gather information about survival rates of the trees. Two times each year the planted areas are screened via drone (with chosen sample areas), and the survival rates are calculated.

With the new generation trap-cameras, aside from recording species and their locations, it's made possible to capture poachers and any other illegal intruders in the area

In order to sustain the ongoing tree plantings in arid locations, another innovation has been introduced and successfully probed in the field. In arid lands of the project, where competition for water was acute, trees were planted with hydrogel-a water accumulating polymer. Additionally, a new deep irrigation system has been installed in the area, which provides the watering of nearly 3500 wild-fruit trees and ensures their natural growth.



Deliverables

- Reforested area, restoration of the threatened tree species.
- Alternative food sources for the wildlife, and to some extent for the people.
- Human-wildlife conflict reduction.
- Foraging grounds for mammals and birds.
- Increased breeding and roosting sites.
- Climate change mitigation and desertification reduction.
- Air quality purification.
- Securing watersheds, purification of the water and securing riverbeds, flood control.

Risk Management

High survival rate mitigation is done by constant monitoring:

- Periodical reports on trees growth.
- Images and videos of planting sites.
- satellite images of canopy cover.
- GPS locations.

Extreme weather conditions – Every year, the targeted areas are subject to desertification more and more, and the dry climate affects the project implementation. Therefore, there is always creates a water supply system for the reforestation areas and irrigates the plants during the summer months.

Wildfires - Starting from 2021 our local partner launched several projects towards wildfire capacity building of its rangers, acquiring fire safety and prevention gears and gadgets, working closely with the local community members to raise awareness on the wildfire issues and preventing methods, launching social media campaigns about the issue. All these steps will help us to strengthen both the team and local communities towards fighting and preventing wildfires. A pilot project was started to install smart sensors on a pilot area, which will detect and alarm the staff about the rise of temperature and possibility of wildfires. Once proven successful, such sensors will be deployed in the restored areas as well.

Financial sustainability of the project - To ensure the project's financial sustainability, we are planning to grow our own trees, which it can sell to have an additional income, and to establish a carbon offset program.

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Timeline and Assumptions

This proposal is for the planting of 60,000 trees within the timeframe of Autumn 2022 (phase for year I).

Tree plantings are done annually, during the Autumn planting season. The trees are grown in our local partner's owned tree nurseries from March to October, and the planting season starts from mid-October till the end of November (pending weather conditions).

2,500 trees are planted per 1 ha. As we restore sparse forests, we do not plant more than 2,500 trees per hectare.

All the trees will be planted in the privately protected area managed by our local partner. Around 5,000 trees will be planted in riparian zones, 55,000 trees will be planted in the degraded areas which used to be sparse forests.

The full project is distributed over 5 years' time.

Y1 (2022) – 60,000 trees, growing starts from April, planting – October November.

Y2 (2023) – 100,000 trees.

Y3 (2024) – 150,000 trees.

Y4 (2025) – 200,000 trees.

Y5 (2026) – 200,000 trees

 1treellion conducted a trial, small scale, project back in October 2020, and with our support successfully restored a small area planting 500 trees, with additional 350,000 trees with outside support covering 140 hectares. This whole restoration aims to cover around 30,000 hectares.



1treellion's test project has a 85% survival rate of the trees. Surviving rates are calculated in two ways, drone monitoring and evidence-based data gathering.

Ecological Strategy

The territories targeted for the reforestation are a part of the CWR, which is registered in the World Database of Protected Areas (WDPA), as well as in the National Strategy Plan for the Key Biodiversity Areas (KBA). According to the IUCN PA categorization system, the CWR corresponds to Category VI: Protected areas with sustainable use of natural resources, protected areas that conserve ecosystems and habitats, together with associated cultural values and traditional natural resource management systems. CWR lands are also included in Khosrov Reserve Important Bird Area (according to BirdLife International) protecting 15 species of birds and Khosrov Forest Emerald Site (according to the Bern Convention).

There are more than 150 bird species occurring in the CWR area, including breeding, migratory or wintering species. Even though the area is a biodiversity hotspot of regional importance the territory suffers from many management shortfalls due to a lack of general environmental law enforcement in Armenia. Poaching, overgrazing, logging, illegal utilization of wildlife and unsustainable collection of rare plants and herbs were not strictly persecuted on a state level. All these human activities have of course a negative impact on wildlife in general and on birds which are highly sensitive to habitat changes in particular. This is something this project addresses. Much of the area used to be high altitude woodland characterized mainly by eastern oak forests from 1,600 m, and Juniper sparse forests at 1,500 to 2,100 m above the sea level.

Other trees occurring in CWR are the European spindle (*Euonymus europaeus L.*), Rowan (*Sorbus aucuparia L.*), Wild Almond (*Prunus fenzliana - DD*), Wild apple (*Malus orientalis*, a wild species considered as one of the ancestors of domestic apples) and a huge variety of wild pears (*Pyrus caucasica*, *Pyrus chosrovica (DD)*, *Pyrus salicifolia (NT)*, *Pyrus syrica*, *Pyrus complexa (VU)*, *Pyrus communis*, the area also encompasses the distribution area of 5 endemic species - *Pyrus sosnovskyi (EN)*, *Pyrus tamamschianae (EN)*, *Pyrus hajastana (EN)*, *Pyrus daralagezi (EN)*, *Pyrus gergerana (CR)*, etc. There are also many bushes such as Caucasian honeysuckle (*Lonicera caucasica*), various species of rose (*Rosa L.*) and hawthorn (*Crataegus L.*), while cereals occur abundantly in the grass cover. The trees and shrubs are extremely important for the fauna of the territory, serving as feeding and breeding sources for birds and mammals, as Bezoar Goats.



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Budget

The request for capital to achieve this part of the forest landscape restoration at Caucasus Wildlife Refuge is budgeted for \$126,894.

This is only one part of the project, there is an opportunity to continue with the restoration. All pending additional funding.

This is a high level representation of the budget, For a detailed budget please refer to the appendix.

Forest Landscape Restoration at Caucasus Wildlife Refuge (CWR)- Budget for 60.000 trees		
Budget Line	Total (AMD)	Total (EUR)*
1. Personnel		
	27,390,000	57,063
2. Transportation expenses (fuel and driver)		
	3,025,000	6,302
3. Construction works (Water & nurseries)		
	1,980,000	4,125
4. Maintenance costs (seeds, fertilizers, etc.)		
	14,717,500	30,661
5. Equipment and other supplies		
	1,353,000	2,819
6. Planting		
	4,922,500	10,255
7. Utilities and aftercare		
	1,485,000	3,094
	DIRECT TOTAL	114,319
8. Indirect costs		
	6,036,030	12,575
	GRAND TOTAL	126,894

*based on rate 1USD=480AMD



More about our work:



THANK YOU

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