Desert Leaves

Desert Leaves

Curayllo Ecorestoration

Afforestation Project in the High Andean Ecosystem of Arapa (Peru)



March 2026

Desert Leaves

desertleaves.org

In 2020, a group of scientists, entrepreneurs and philanthropists founded **Desert Leaves** based on the realization that scientifically based afforestation is a response to a number of challenges facing our planet today, such as global warming, desertification and habitat destruction.

Desert Leaves' mission is to increase and disseminate knowledge about forests and forestation in arid areas, connect and support people and organizations around the world involved in afforestation and forest conservation in arid areas, and support initiatives that pursue the growth of sustainable forests in dry areas.

Desert Leaves focuses on three areas of activity: **education, awareness-raising and projects**.

In the area of education, it organizes courses, scholarships for students, and technology transfer workshops. In the area of awareness-raising, it organizes symposiums for different groups and produces publications in the press, on the internet and on social media. In the area of project development, it promotes specific afforestation initiatives in arid and semi-arid areas, both in Spain (Murcia, Valencia, etc.) and in other countries.

The Desert Leaves Foundation is an official partner of the United Nations Decade on Ecosystem Restoration and the United Nations Convention to Combat Desertification (UNCCD).





CEDEPAS PERÚ

CEDEPAS Perú (Centro Ecuménico de Promoción y Acción Social) is a non-profit civil association founded in **1984** that promotes **human development** by improving living conditions, reducing poverty, and strengthening the economic and social capacities of women and men to enable the effective exercise of their rights.

Working closely with **small-scale agricultural producers, irrigation users, local and regional authorities**, and civil society leaders, CEDEPAS PERÚ drives processes of equitable institutional and productive transformation in rural territories.

The organization develops initiatives that strengthen **agroforestry and agricultural value chains**, foster **citizenship and democracy**, and promote the **sustainable management of natural resources** in the context of climate change.

Since 2015, CEDEPAS PERÚ has been officially recognized by the **Instituto Tecnológico de la Producción** (ITP) of the **Ministerio de la Producción del Perú** as a Center for Productive Innovation and Technology Transfer (CITE) specialized in the agricultural sector, providing services that promote innovation and sustainability in small-scale farming.

Guided by principles of **ethics, solidarity, equality, democracy, transparency, and sustainability**, CEDEPAS PERÚ acts as a strategic actor at both regional and national levels, building bridges between the public and private sectors and civil society to promote inclusive, equitable, and environmentally responsible development.



Arapa and the High Andean Ecosystem

The district of **Arapa**, located in the **Puno** region in southern Peru, is part of a semi-arid high-Andean ecosystem situated between 3,700 and over 4,500 meters above sea level. In this extreme environment – characterized by strong day–night temperature fluctuations, high solar radiation, intense winds, and pronounced rainfall seasonality – native ***Polylepis* (Queñua)** forests play a crucial ecological role.

Historically, these forests covered rocky slopes and ravines near the community of **Curayllo**, where they functioned as natural regulators: **capturing and retaining moisture, protecting soils from erosion, and sustaining high levels of biodiversity adapted to high-altitude conditions**. Today, more than 90% of *Polylepis* forests have disappeared across the Andes due to overgrazing, grassland burning, fuelwood extraction, and land-use change. This degradation has reduced water availability, increased erosion, and weakened local livelihoods.



Leveraging Proven Experiences

In the neighboring community of Pantipantine, CEDEPAS PERÚ implemented 3,700 linear meters of **infiltration trenches** and planted 1,200 Queñua (*Polylepis*) trees along with 300 pine trees in strategic water recharge areas. The fencing and **community-based management** of the site made it possible to protect young plants, improve soil conditions, and demonstrate that reforestation with *Polylepis* generates tangible, long-term environmental benefits.

Scientific studies on the effects of this type of plantation have shown that queñua forests contribute significantly to water regulation:

- They can account for around 15% of **annual precipitation in watershed-scale water regulation** – a figure comparable to grasslands (*pajonales*) and close to that of *bofedales*, traditionally considered the most effective ecosystems for water retention.

- The dense structure of their canopy and root systems **enhances infiltration, reduces surface runoff, and allows for a more gradual release of water** during the dry season.

These findings confirm that *Polylepis* restoration not only stabilizes soils on steep slopes and in high-mountain areas but also strengthens water security and climate resilience for high-Andean communities.



The Reforestation Project

In July 2025, **Fundación Desert Leaves** and **CEDEPAS Perú** signed an agreement to **plant 13,700 native Queñua** (*Polylepis*) trees around the community of **Curayllo**. The project objectives are to:

- **Restore degraded high-Andean ecosystems** through the use of native species.
- **Stabilize soils** on steep slopes, reducing erosion and the loss of soil fertility.
- **Improve water retention and regulation** by enhancing infiltration and increasing water availability for crops and pasturelands.
- **Protect and restore habitats** for endemic and threatened flora (including medicinal plants, native tubers, and epiphytes such as orchids) and fauna, including bird species such as the ash-breasted tapaculo, the white-browed tit-spinetail, and the Andean thrush.
- Contribute to **climate change mitigation** through carbon storage in forest soils, where *Polylepis* organic matter is particularly stable.

Community Participation and Socioeconomic Impact

Forty local families from Curayllo are directly involved in the project, contributing land and labor for planting and maintenance activities. Participating families receive:

- **Water tanks and solar-powered pumps** to meet domestic and agricultural needs.
- **Workshops and hands-on training** in forest ecosystem management, planting, and maintenance.
- Immediate incentives, such as **meals and food packages** during planting and training activities.





Enviromental Benefits

- New habitat for **threatened and endemic species** of birds, mammals, and amphibians.
- **Carbon sequestration:** estimated between 2,400 and 4,800 tons in 50 years.
- **Prevention of soil erosion** and stabilization of hillsides.
- **Regulation of water cycles** for streams, wetlands, and agriculture.
- Increased landscape **biodiversity and climate resilience**.

By planting Queñua, this initiative creates resilient forests, thriving communities, and sustainable livelihoods, showing how nature-based solutions can simultaneously address environmental and social challenges in the High Andes.

Ensuring Long-Term Sustainability

CEDEPAS Perú will continue to support and monitor the new forests beyond the initial planting phase. Actions include:

- Establishment of a **local forest management committee** responsible for ongoing maintenance, replanting, and the fencing of critical areas.
- Awareness-raising campaigns carried out in collaboration with local authorities – such as SERFOR and MINAM – and non-governmental organizations.

This approach ensures that reforestation delivers lasting ecological, social, and economic benefits, empowering the community to sustainably manage and protect its new forests over the long term.

Your Contribution to the Project

To make this project possible, we are also counting on the financial support of NGO's, companies and industry associations. By supporting the project, organizations contribute to the recovery of high-Andean ecosystems, strengthen local communities' resilience to climate change, and make their social and ecological commitment visible through the communication tools available to Desert Leaves: signs in the reforested areas, news in social media and web pages, and other actions that can be designed jointly.

The following organizations already support the Curayllo Ecorestoration project:



Contacts

Fundación Desert Leaves – Proyecto Ecorestauración Curayllo

wim@desertleaves.org

tel. +34 674 39 20 38

@desert_leaves

Desert Leaves