Field Study: Amazigh Knowledge of Land, Plants and Animals in Morocco's High Atlas

Jeffrey Ferns | Field study, May 2026 | Marrakech and the Ourika Valley, High Atlas, Morocco

Summary

In May 2026 I spent a week in Morocco doing a field study of the Amazigh, the Indigenous people of North Africa, and the knowledge systems that sustain their communities in the High Atlas Mountains. I worked out of Marrakech and traveled south into the Ourika Valley, recording observations between about 1,000 and 1,800 meters in elevation. I focused on four areas: terraced mountain agriculture, the plants that shape daily life and medicine, the women-owned cooperatives that turn local plants into topical remedies, and the herbal trade in the Marrakech medina. I came to Morocco as someone who interprets the plants and foodways of the Sonoran Desert, and I was struck by how much the two landscapes have in common.

Context

The Imazighen (singular Amazigh, often translated as "free people") have lived in North Africa since at least 3000 BCE (Princeton University Digital PUL). The term "Berber" is still common, but many Imazighen consider it a colonial label and find it offensive. In this study I use the community's own name.

The Atlas Mountains have long been a stronghold of Amazigh language and culture. As Arabic spread through North Africa's cities, the mountains kept Tamazight (Middle East Minorities). What I saw in the villages bears that out. Language, building methods, farming and plant knowledge are practiced as part of everyday life rather than kept up as heritage displays.

Method

This was observational fieldwork: walking village paths and farm terraces, sharing meals with families, visiting cooperatives, and talking with herbalists in the medina. I photographed plants, animals, agricultural features and material culture, and I logged location and elevation for each image. I offer what follows as one visitor's record, not an ethnography. The knowledge I describe belongs to the communities that hold it and pass it on.

Observations

Into the High Villages

The road we took climbed deep into the Atlas Mountains. From where it ended, we hiked up to mountain villages near the crest of the range. What stayed with me most was simply watching people go about their daily lives in such a remote place: tending animals, working the terraces,

cooking and receiving guests. None of it was staged for visitors. These villages are lived-in places, and their rhythms are set by the seasons, the water supply and the slope of the land.

From those heights it was easy to understand the range's importance. The Atlas Mountains form a barrier between the Mediterranean basin to the north and the Sahara to the south (Britannica). The north-facing slopes catch rain and snow from Atlantic storms and feed rivers on that side. Past the crest, the land drops toward the arid pre-Sahara (Britannica). The Amazigh villages near the top sit on that divide, between two very different worlds.

Terraced Agriculture and Water

In the Ourika Valley and the neighboring slopes, villages built of earth and stone sit high on the slopes, above the most fertile ground. Below them, small terraced plots step down toward the river. Green barley and other crops grow in fields edged with stone, alongside olive groves and fruit trees. Building on slopes keeps the flat, irrigable land free for farming. That trade-off makes sense wherever arable land and water are scarce, and every desert farming culture I know of has worked it out in some form.

These terraces are a form of regenerative farming that predates the term. Stone retaining walls hold soil on steep slopes. Water is diverted from streams and channeled from plot to plot. Livestock manure goes back into the fields, and the walls and field edges host wild plants that feed pollinators and grazing animals. In early May the red clay banks along the paths were covered in violet wildflowers and small herbs, and butterflies were feeding on the stones.

Spring-Fed Water Channels

The water systems were among the most impressive things I saw. High in the mountains, natural springs and snowmelt streams are tapped at their source and carried downhill in narrow open channels that follow the contours of the slopes. Gravity does all the work. The channels split again and again, running along terrace walls and into the gardens and fields where families grow their traditional crops. In a dry, steep landscape, the result is a band of green that runs through the valley.

In Tamazight a main canal is a targa, and the smaller channels are seguias (Tripjaunt). Researchers have traced related water-storage systems in the High Atlas to the late 12th century, and many of the original clay-and-earth channels are still in use, though some have been lined with concrete (University of Kassel). Studies of Amazigh villages describe terraces planted with cereals, legumes, vegetables and trees, all watered by seguias, with water shared out at the community level (Discover Sustainability).

The social side of the system impressed me as much as the engineering. In one common arrangement, called nouba, each family gets the water for a set period based on inherited water rights, and the sluice gates open in turn at fixed times each week so everyone receives a share (Montanari, HAL). Each year, households also carry out arras n targa: early in the summer, when water is low, one man from each family helps clear sediment from the canals (IUCN). The work is done through tiwizi, the Amazigh tradition of shared labor (IUCN). The channels last because the communities maintain them and govern them together.

Familiar Plants, Different Histories

I didn't expect to feel at home among the plants. Agaves grow along the field margins, and prickly pear is a common hedgerow and boundary plant. To a Sonoran Desert eye, they look like neighbors. Both, however, come from the Americas. Prickly pear (Opuntia ficus-indica) was carried from the Americas to the Mediterranean after Columbus and reached North Africa about a century later (Brazilian Archives of Biology and Technology). The earliest recorded cultivation in Morocco dates to 1770 (FAO).

In the few centuries since, Moroccan communities have made these plants their own. Prickly pear is now used for fruit, livestock fodder, land rehabilitation, and cosmetic and pharmaceutical products (FAO). Since 2014 an introduced cochineal insect has destroyed large areas of Moroccan cactus plantations, and farmers have begun replanting with resistant varieties (Wikipedia). That a Mexican plant is now part of an Amazigh landscape, and has picked up a Mexican pest along the way, is a reminder that plant knowledge keeps changing. Communities absorb new species, adapt them, and fold them into old practices.

The Argan Tree

My hosts introduced me to the argan tree (Argania spinosa), the tree I most wanted to understand. Argan grows wild nowhere else on earth; it is native to the Arganeraie Biosphere Reserve in southwest Morocco. Its oil is used in cooking, medicine and cosmetics, and making it requires a sequence of skilled steps: harvesting, drying, pulping, grinding, sorting, milling and mixing (UNESCO). In 2014 UNESCO inscribed these practices on its Representative List of the Intangible Cultural Heritage of Humanity (UNESCO).

Argan is a good example of what I came to study. The tree, the land it grows on, the grazing animals, the hand mills, the recipes and the women who hold the knowledge all form one system. Morocco's nomination file notes that communities protect argan woodlands from grazing at certain times of year so the trees can regenerate and the fruit can ripen (UNESCO nomination file). That is land management built on close observation over a very long time.

Women-Owned Cooperatives and Topical Plant Medicine

The most memorable part of the trip was visiting women-owned cooperatives that make topical plant medicines from local flowers and herbs. Women have always carried argan knowledge, teaching their daughters by example and by working alongside them (UNESCO). The cooperative system has given that knowledge an economic base. It has renewed young women's interest in learning the craft from their elders, and many cooperatives also offer literacy classes (UNESCO nomination file).

I was impressed by how precise the work was. The women decide which flowers to harvest and when, how to dry and infuse them, and how to combine botanicals with oils for salves and skin treatments. That knowledge has been refined over generations. The cooperatives keep it in women's hands while creating income in rural communities, and they are a working model of how traditional knowledge can support a community without being taken away from it.

The Herbalist's Shop

In the Marrakech medina, the herbalists' shops serve as a public catalog of Moroccan plant knowledge. Glass bins and painted clay pots held rose petals, pomegranate flowers (fleurs de grenadier), sage, bay leaves, cinnamon bark and roots I didn't recognize, each labeled by hand. Bundles of dried herbs hung over the lanes to cure. One vendor held out a basket of dried umbels of khella (Visnaga daucoides), whose stiff flower stalks are used as toothpicks. Khella has a long history in the region's folk medicine, especially for kidney stones and renal colic (Molecules, via PMC). Several of these plants are also traditional ingredients in the topical preparations the cooperatives make.

Nearby, down a narrow passage in the medina, I stepped into the furnace room of a centuries-old hammam that is still in use. The fire that heats the bathhouse also feeds the neighborhood. The men tending it stack firewood beside the furnace and cook lunchtime tajines for local residents in its heat. One fire serves two purposes, heating the baths and cooking a shared meal. It was one of the clearest examples I saw of a community making full use of a single resource.

Animals and Pastoral Life

Animals are part of the farming system, not separate from it. In village courtyards, ewes and young lambs feed from shared basins, and their manure goes back to the terraces. Seasonal movement of flocks between high summer pastures and lower winter valleys has long shaped life in the Atlas (PG World). The plants that grow at different elevations determine where and when animals graze, and so where and when people move.

Hospitality and the Table

Some of the best fieldwork happened at the table. Meals came with snow-covered High Atlas peaks in view: a golden soup served in clay bowls with wooden spoons, tea poured at the table, and long conversations on cushions and carpets in shaded gardens along the Ourika River. Food was where land, plants, animals and people came together.

Reflections

I study the Sonoran Desert, where O'odham and other Indigenous communities have built food and medicine systems on deep knowledge of plants that thrive with little water. In the High Atlas I found a parallel tradition on another continent, developed independently, solving many of the same problems. Both cultures terrace and channel water, build with earth and stone, value plants that do well in dry ground, and pass knowledge down through families, often through women.

Three conclusions stand out from this study:

1. Regenerative farming is not new. Amazigh terraces, spring-fed water channels, grazing rotations and seasonal protections for argan woodlands put into practice principles that modern agriculture is still trying to name.

2. Plant knowledge keeps changing. Prickly pear and agave, both from the Americas, are now firmly part of Moroccan landscapes and economies, showing how Indigenous knowledge systems take in new species and give them meaning.
3. Women hold much of this knowledge, and cooperatives can protect it. The women-owned cooperatives I visited show how traditional plant medicine can provide income and dignity while staying under the control of the people it belongs to.

I returned to Arizona with a deeper respect for the Amazigh people and with new questions for my own work interpreting the Sonoran Desert. I hope to come back to these comparisons in future programs and plant walks.

Photo Captions

Suggested captions for pairing images with the text. File names refer to the Drive folder.

Photo	Suggested caption
IMG_3771	An earth-and-stone village above terraced fields and olive groves in the Ourika Valley, about 1,280 m.
IMG_3797	Agave growing at the edge of a green barley terrace. Like prickly pear, agave was introduced from the Americas.
IMG_3775	Violet wildflowers and herbs on a red clay bank in early May.
IMG_1369	A butterfly resting on granite stones along the Ourika River, about 1,000 m.
IMG_3825	Our host serving lunch, with snow on the High Atlas behind, about 1,790 m.
IMG_3826	A golden soup in a clay bowl with a wooden spoon.
IMG_3757	Tea in a shaded garden along the Ourika River.
IMG_3835	Ewes and lambs at a feeding basin in a village courtyard.
IMG_3836	A village garden of wild herbs and grasses, with a resident cat.
IMG_3931 / IMG_3934	An herbalist's display in the Marrakech medina: sage, cinnamon bark, bay leaves and rose petals.
IMG_3940	Dried pomegranate flowers (fleurs de grenadier), used in traditional preparations.
IMG_3941	Dried roots at an herbalist's shop, labeled by hand.
IMG_3942	Bundles of herbs drying over a medina lane.
IMG_3735	Dried umbels of khella (Visnaga daucoides), sold as natural toothpicks and used in folk medicine.
IMG_3719	The furnace room of a centuries-old hammam in the Marrakech medina that is still in use. The fire heats the baths and cooks lunchtime tajines for neighborhood residents.
IMG_3723 / IMG_3732	Covered passages and ochre walls of the Marrakech medina.
PHOTO-2026-05-08	On the trail in the mountains at the start of the field study.

Sources

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