L.E.T.S. Lebanon

Issue 43, July 2017

• Creativity • Collaboration • Continuity • Community

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FEATURE STORY

FROM CYPRUS: INSPIRATION FOR BOTANICAL GARDENS

During our recent trip to Cyprus, our itinerary included the **Cyherbia Botanical Park and Labyrinth** in **Avgorou**, a village 40 minutes by car from **Larnaca**. For us, the main attraction of Cyherbia was its **herb garden**, which produces herbal teas, essential oils, cosmetics, and other related products. We also hoped to find inspiration for our own aromatic garden we are starting in the village of **Saidoun**, **Jezzine**.

Like most Cypriot villages, Avgorou is not served by public transportation, so we had to hire a taxi for the day. The driver had never heard of Cyherbia, as it isn't a typical tourist destination. Unfortunately, we were one week early for the annual Lavender Festival which includes workshops and demonstrations on lavender processing, but we hope to attend another time.

The gardens include Mediterranean herbs and trees (most of which exist in Lebanon) that are organically grown and drip irrigated. The gardens were divided into different sections by plant types and uses such as the medicinal garden, the kitchen garden, the pest control garden, etc. This area is bordered by hedges of laurel and carob trees which are arranged East-West in order not to shade the herbs. The different gardens aren't clearly delineated but it was fun to walk through them and discover the species planted there. Sometimes, it took a little searching for us to find the sign indicating the binomial name of less familiar species, such as yarrow. Most of herbs were buzzing with bees and bee flies, and provided shade for a large population of starred agamas.

The Maze is the only hedge labyrinth in Cyprus and is a fun, easy affair (15-20 minutes to get out). Whenever we reached dead ends, we were rewarded with photographs of local birds and their binomial names.

The Woodland is a path in the shape of Cyprus (although you can only tell from an aerial view) that includes different native trees and shrubs, as well a few surprises such as a tiny fairy village or other attractions. Along the path, each city in Cyprus is represented by a corresponding info-stand with historical and cultural highlights. There are also a few surprises along the way, such as a tiny fairy village.

The herbal café and shop proposes herbs, oils, teas, and cosmetics from plants grown in the garden and other sources. The distillation laboratory is adjacent to this space and displays large posters explaining the distillation process and the benefits of the different essential oils produced there (lavender, laurel, rosemary, thyme, oregano).

[...]

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While drinking our iced herbal tea in the shade, we noticed a small 1 m^2 greenhouse structure with a fennel plant in it. On closer look, the plant appeared to host cocoons and caterpillars of the black Swallowtail butterfly (*Papilio polyxenes*) which the herbalist at Cyherbia was trying to protect from small predator wasps. This proved to be a nice attraction for visitors - especially children - to observe the metamorphosis of butterflies.

I was particularly happy to see how the rows of laurel and carob were not casting shade due to their orientation, I also got ideas for new species in our aromatic garden. Speaking of our garden, we are currently re-designing it with our friend *George Debs*, a landscape and permaculture designer, to turn it into an educational garden. We will add some native trees to create a hedge that will serve as a habitat for wildlife and a visual buffer. We will also add some cash crops in the less sunny areas such as aloe vera and pelargoniums, which can be used in soap making. There will also be an area with a small nursery and a shed dedicated for activities.

Stay tuned for more details in the coming months.

Shared by Rita Khawand

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LET'S FOCUS

FROM CYPRUS: PLANTING AND THRIVING IN DRYLANDS

Earlier this year I heard about the **Atsas farm** from a Cypriot friend and was eager to visit, especially after the buzz about it producing **"the world's healthiest olive oil"** using permaculture design. I had heard about *Nicolas Netien*, one of the managers, when he was still working in Greece, but never had the chance to meet him. I noted this in my agenda as a must visit destination during our honeymoon in **Cyprus**.

Atsas is located near the **UN buffer zone** next to the illegally occupied Northern part of Cyprus, and is difficult to reach with public transport, but fortunately Nicolas put us in touch with *Melina Nicolaides*, one of his collaborators who was kind enough to drive us from Nicosia. Nicolas hosted us on the windy terrace of his wooden house and started telling us his story while we drank homemade lemonade and grapefruit juice.

Nicolas is a French environmental consultant who met his Cypriot wife *Maria* on a Permaculture Design Course in Jordan seven years ago. Around 2011, Nicolas met Maria's uncle who owned a **2-hectare olive grove** with **600 trees** next to the buffer zone. The land had no top soil and the olive trees were planted in holes drilled in the rocks and filled with manure. This caused a potting effect for the roots and they started growing in spirals, making the trees very fragile—some were even uprooted by the wind. Nicolas and Maria's uncle clicked together right away and decided to start a new trial on the land.

FIRST TRIALS

In 2013, Maria and Nicolas started their first trial in the olive grove. They hand dug 3 km of **shallow swales** and planted the mounds with aromatic plants like sage, lavender, rosemary, thyme, etc. Shortly after the rainy season, organic matter started to accumulate and the aromatics survived without irrigation for a long time. Then the couple started re-training the roots of the olive trees, replacing water sprayers with self-regulated drippers, which they installed next to the trunk then gradually started moving them further away so the roots would spread out. At this stage everything was done by hand with no mechanization.

Encouraged by the positive effects of the first trials, Maria's uncle bought another **40 hectares** nearby, of which they planted only 2. Being on the buffer zone, the land hadn't been touched for more than 40 years. It lies next to an old copper mine and is very dry, having the lowest rainfall in Cyprus (300 mm). Data from a nearby weather station revealed that rainfall has decreased by 17% over the last 20 years, with a drastic decrease in the last 5 years, so it was clear they had to design for drought. Neighboring farmers plough their land many times a year in order to get subsidies for wheat production (they get paid by the area of ploughed land) which causes a lot of erosion and land degradation. The land was almost bare with the exception of some shrubs which most of them were kept.

Nicolas and Maria planted the trees at a wide spacing of 6 m without ploughing, just by digging and using 3 strategies: inoculating seedlings with **mycorrhizal fungi** (which they bought online), applying a special type of **compost** they made themselves out of a variety of manures inoculated with good quality compost (ratio 10:1), and inter-planting the trees with **nitrogen fixing trees**. The nitrogen fixers failed because they weren't drought tolerant; they probably chose inappropriate species. The most efficient practice proved to be the mychorrhizal inoculation which allowed the roots of the olive trees to access more water; the trees actually need **5 times less water** than recommended by the Ministry of Agriculture. Nicolas says the compost helps but it shouldn't be applied in big quantities, otherwise the trees will grow a lot of branches and produce little fruit. The trees bend to one side because of the strong salty wind coming from the sea (tough but beneficial), and they are not pruned the first 4 years.

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LET'S FOCUS

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IRRIGATION COMES FIRST IN DRYLANDS

The largest investment Nicolas and Maria made was in irrigation, since they had to install hundreds of kilometers of hoses with a complex pressure system. They also had to build a hybrid dam to catch rainwater, as the water coming from a reservoir in the mountain wasn't enough. A mini-dam catches the runoff from the hill and collects the silt before overflowing into an open-air reservoir lined with geotextile because there is no clay in the soil. The silt is picked up in summer and used as potting soil. With only 3 mm rainfall in 2015, the pond was filled to one third.

The second largest investment was in mechanization, which is necessary for such a big number of trees (6,000). They bought a tractor which can be connected to different attachments to perform multiple functions (digging, lifting, weeding, etc.) as well as a 2-wheel mower. Since they're off-grid, they get their electricity from photovoltaic panels (with a backup generator). Previously, they had bought a cheap wind turbine from China which they regretted buying as it quickly broke down. Soon, they plan to install a gasification system which turns biomass into electricity and biochar.

Going back to the olive oil, they got their own small-scale olive mill which can process up to 200 kg/hr, a great rate for continuous milling. A team of 8 people handpicks the olives and a truck carries 100 kg of harvest to the mill every 30 min. The short interval between picking and processing plays a major role in the olive oil quality, as do the early harvesting (just as the olives are turning black), the type of the bedrock, and other agriculture practices (inter cropping with aromatics, no tilling, etc.)

After a lot of trials and research, they reached a world record in the **polyphenol content of oil**, **3,760 mg/kg**, or more than fifteen times the 250 mg/kg stipulated by the EU labelling regulation. This means that the oil has strong medicinal and anti-inflammatory properties. Atsas is currently producing 3,000 bottles a year and aims to raise this to 50,000 in 10 years. The oil is marketed locally and recently got **FDA approval** for export to the US.

SMALL ACTIONS CAN HAVE A BIG EFFECT

Nicolas says there is no need for big fancy swales, especially in drylands. The smallest of actions can have the biggest effect. For example, piling up stones attracts **birds** which spread their droppings and seeds of shrubs and trees such as **wild asparagus** (which Atsas will start selling) and **inula viscosa** (طيون) which hosts a predatory wasp that controls olive fruit fly populations.

Another small action consisted of piling up stones in creeks along the valley. After the rainfalls, these mounds accumulate organic matter and humidity, eventually building up soil. They serve as small green oases and wildlife habitats (even a frog showed up there).

DIVERSITY IS THE KEY TO THE STABILITY OF ANY SYSTEM

It's true that the olive trees are planted in rows next to each other as in monocultures for ease of mechanization but they're not the only plants there. There are lines of cacti that act as a fire break, and as a source of many products (seed oil, pulp, fiber). There are also carob, pomegranate, and hawthorn trees inter-planted with aromatics. Nicolas and Maria create some unusual products from these species, such as balsamic vinegar. When they first arrived, they had recorded 56 species locally; now, only 4 years later, that number climbed to around 350.

THE FUTURE LOOKS BRIGHT

Nicolas and Maria are currently experimenting with 6 varieties of **ground cover** from the Medicago family. When the trees are established, they are thinking about having a local farmer bring chicken to graze under the trees. In 10 years, they think the system will be stable enough that they will be able to stop adding compost, irrigating, and treating (even with organic pesticides).

Nicolas took us on a quick tour to the new plot with the water reservoir. He told us he plans on turning it into a small ecosystem with different types of fish, floating islands to reduce evaporation, and plants on the edges to cover the geotextile.

We are extremely grateful to Nicolas for hosting us despite his tight schedule. Currently the farm doesn't host volunteers or woofers since it's still in the process of setting up; the couple prefer to focus on their own work which is a very wise decision. Hopefully, once the system is established there will be more time for interaction with the outside world. Atsas is a live example of how a project can regenerate the land, increase bio-diversity, and be profitable all at once, even with very low rainfall.

To know more about Atsas farm I highly recommended to purchase this **webinar** for only $6, in which Nicolas gives more details on his work and property:
https://vimeo.com/ondemand/90437/193134101
Facebook: Atsas Organic Products Cyprus
Website: www.atsas.com.cy

ATSAS TRAINING CENTER

Not far from the farm, there's a training center run by an NGO, located in a renovated mud brick house. The center organizes different types of trainings that are of interest to locals, such as organic agriculture, permaculture, food processing, marketing, beekeeping, etc.
Website: www.atsastraining.com.cy

Shared by Rita Khawand

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LET'S SHARE OUR NEWS

SIGN UP FOR A NEW ORGANIC AGRICULTURE AND BIODIVERSITY TRAINING

Around this time last year, the **Graines et Cinema** team started multiplying Mediterranean heirloom seeds in the 2-dunum pedagogic garden we established in the **Taanail Convent**. The aim was to promote local farmers' seeds and counter the progressive monopoly of corporate seeds. To store them in appropriate conditions, we built a traditional Beqaa-style house out of 8,500 mud-bricks and 70 poplar trunks sourced locally.

The team initiated a 2-day workshop on seed reproduction in which 70 people from different social backgrounds and origins participated and exchanged their views on heirloom species and food sovereignty. During the event, the participants created the **Buzurna Juzurna - بذورنا جذورنا** (our seeds, our roots) network to include and connect seasonal gardeners, organic shops, consumers, landowners, agricultural workers, and ecological activists.

Today, Buzurna Juzurna works hand-in-hand with the NGO **Sawa for Aid and Development** to support a 16-dunum organic school-farm in the town of **Saadnayel** (middle-Beqaa). This farm is managed by passionate agricultural workers and engineers who are trying to create a green organic spot amid a sea of agro industrial operations. More than **200 species** are cultivated there, including 36 tomatoes of different colors and sizes, 8 cucurbits (one of each genera), 7 types of basil (including cinnamon and lemon), 30 types of local wheat (bakers' mix, bread wheat, and durum wheat), a nice diversity of cereals (spelt, oat, teff, corn, barley, rye, sorghum, linen, and buckwheat), etc. Most of the varieties are from **Palestine**, **Iraq**, **Greece**, **France**, **Syria**, and **Lebanon** and are being bred to be re-adapted to dry climate conditions through reduced irrigation and selection of the best specimens for preserving seeds.

As this farm is also meant to be a place to learn and exchange knowhow, we are now welcoming amateurs and practitioners to attend a 15-day intensive and efficient training program.

The program is divided into 7 sessions to provide a broad view of the organic world and dedicate enough time for practice. The trainings will be provided by members of Graines et Cinéma in addition to several experts from our network including *Ghassan Al Salman* from **SOILS Permaculture Association Lebanon**. Participants will acquire a wide range of skills, from agricultural policies and irrigation systems to pharmacopoeia, going through grafting and pruning, as well as how to make their own fermented extract, bio-pesticides, and seeds.

The sessions are given in Arabic and English, and extend for 3 months. Every module covers 2 afternoons, once every two weeks (one group on weekdays, one on weekends).

Ask for the program grainesetcinema@gmail.com. The first group has already started with sessions on composting and botanical families. You can join the second group, starting mid-August, then jump from one group to another according to your flexibility or attend the sessions you like.

At the end of the program, we will organize a meeting on **October 28, 2017** with all our friends and members of our network to write a collective and alternative charter for organic agriculture to support and frame the network.

We hope to see you soon.

To find out more, follow us on Facebook: Graines et Cinéma

Shared by the Buzurna Juzurna team.

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LET'S SHARE OUR NEWS

SHOOT ONLY WITH A CAMERA: THE EGYPTIAN VULTURE

The **Egyptian vulture** (***Neophron percnopterus* - الرخمة المصرية)** is a medium-sized raptor with a wingspan of up to 1.75 m, weighing a little more than 2 kg. Adult individuals have a white plumage and wings outlined by black underwings while juveniles have a brownish plumage streaked with yellow and white feathers. The vulture's head is bald with a yellow face, ending with a slender hooked black beak.

Under the rule of the pharaohs, the ancient Egyptians revered this highly intelligent bird and painted it on the walls of the pyramids. It was also a pictograph in the hieroglyphic alphabet and was used as a symbol for several words, including royal titles or references to prosperity.

The Egyptian vulture is known for its intelligence and patience in using tools suited to getting its food. For example, it can hold a small stone in its beak to break the thick-shelled eggs of some birds to devour their contents. Its diet consists of insects, small animals, eggs, garbage, carrion, and the feces of some animals. Females usually lay 2 eggs and both parents incubate them and raise the young in a nest

The Egyptian vulture soars over rocky areas and open plains in dry climates looking for food. It had been observed to nest in Lebanon in the past, but today it can only be seen flying over the Bekaa valley and Lebanon's mountain ranges during its spring and autumn migration only. Unfortunately, although it is an endangered species protected by international laws, the Egyptian vulture remains a victim of the ignorance of so-called hunters in Lebanon.

Shared by Fouad Itani

All photos courtesy of Fouad Itani. See more photos on Birds of Lebanon and the Middle East https://www.facebook.com/birdsoflebanon/

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GET IN TOUCH, GET INVOLVED

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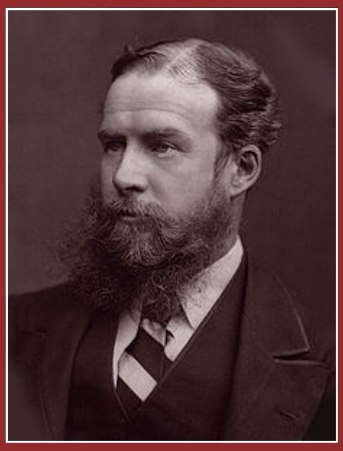

"Earth and sky, woods and fields, lakes and rivers, the mountain and the sea, are excellent schoolmasters, and teach some of us more than we can ever learn from books."

–John Lubbock (1834-1913)
The Use of Life

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