

GEIA

YEARLY MAGAZINE OF AMBIOS PORTUGAL

THE NATURE AROUND US

Get to know some of the native and exotic species you can spot on a walk around the Sorraia river

CAROB LEATHER

Learn how it was made and which are the properties of this plant-based leather

CORUCHE IS A NATIONAL
HOTSPOT FOR GLOW-
WORMS AND FIREFLIES

TECHNICAL SHEET

GEIA N ° 4 12 / 2022

EDITORS

Inês Roque & Shirley T. van der Horst

DESIGN

Shirley T. van der Horst

TEXTS

Carla Tadeia, Cláudia Lopes, Inês Roque, João Leitão, Luís Guilherme Sousa, Mariana Moreira, Mónica Gonçalves & Shirley T. van der Horst

PHOTOGRAPHS

Carla Tadeia, Cláudia Lopes, Inês Roque, João Leitão, Luís Guilherme Sousa, Mariana Moreira, Marta Ortigosa, Shirley T. van der Horst

REVISION

Inês Roque & Shirley T. van der Horst

PERIODICITY

Anual

ISSN

2184-4437

PROPERTY/EDITOR

Ambios Portugal.

Collective person number: 514761300

The signed articles express the opinion of their authors, which may differ from the opinion of Ambios Portugal.

Ambios Portugal thanks all those who participated in GEIA with text and photographs.



INDEX



01

WHO ARE WE?



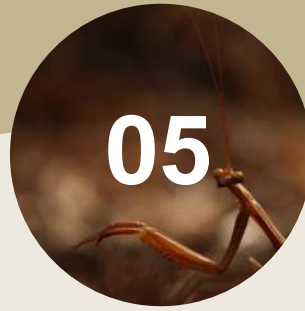
02

EDITORIAL



04

CONSERVATION



05

THE NATURE
AROUND US



08

RIVER POLLUTION



10

THE BARN OWL IN THE
TAGUS ESTUARY



14

IN MOBILITY



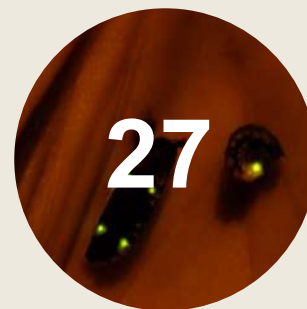
19

OUT MOBILITY



23

KEEPING A NATURE
JOURNAL



27

ID | FIREFLIES AND
GLOW-WORMS



30

SUSTAINABILITY



31

THE CREATION OF
ALFARROBA.TEX



33

SUSTAINABLE
RECIPES | FIRE CIDER



34

AUTHORSHIP OF
PHOTOS AND
IMAGES



AMBIOS PORTUGAL

1 Various species of wildflower in bloom.

is a non-governmental not-for-profit organization founded in 2018 and based at the Cork Oak and Cork Observatory in Coruche, Portugal.

Ambios Portugal was founded by a team from universities, non-governmental organizations, companies, and the public administration, with links to the environment sector. The principle of Ambios Portugal is to contribute with the professional experience and skills of each member to achieve a common goal: promote the conservation of biodiversity, sustainable development, and social involvement within these goals.

MANAGEMENT

President	Inês Margarida Ferreira Roque
Secretary	Sandra Eugénia Cruz Mariano
Treasurer	Shirley Therese van der Horst

GENERAL ASSEMBLY BOARD

President	Hélio de Sousa Ferreira
1 st Secretary	Ana Margarida Casimiro Ferreira Marques
2 nd Secretary	Cláudia Maria Gomes Lopes

FISCAL COUNCIL

President	Carlos António Marques Pereira Godinho
1 st Secretary	Patrícia Alexandra Felismino da Silva
2 nd Secretary	Maria Beatriz Ferreira Roque



EDITORIAL

2 Species from the genus *Alisma*.

Thirty-two minutes. That's how much time we gained by redirecting the natural satellite Dimorphos, when NASA hit it with the space probe from the DART mission - the acronym in English for Double Asteroid Redirection Test. At 11 million kilometres from Earth, the 160-metre-wide Dimorphos orbits the asteroid Didymos, which is almost five times larger. After the collision, the orbit of Dimorphos now takes 1h23 instead of 1h55. The success of this mission in 2022 marks important progress in our ability to avoid asteroid collisions with Earth. In the next 300 years there is a 1 in 1 750 chance of Earth being hit by Bennu, one of NASA's most watched asteroids in the solar system. At 500 metres in diameter, the asteroid Bennu travels at 100 000 kilometres per hour and its collision with Earth would make a crater five kilometres in diameter and release energy 70 000 greater than the Hiroshima bomb.

This doomsday movie scenario is currently believed to have been the cause of the extinction of the dinosaurs. It is therefore the elephant in the room. If we know that an elephant is going to come into our living room at any moment, we will certainly try to protect ourselves by barricading the door as quickly as possible. But what if we know that the elephant won't arrive for another 28 years? Now that we have time,



3 Storm brewing near Coruche.

we can barricade the door later, not least because a barricaded door would mean some disruption to our daily comfort. The elephant problem is that of a medium-long term length. It is the feeling of false security that makes us wait until the moment when we have no option but to face reality and (re)act.

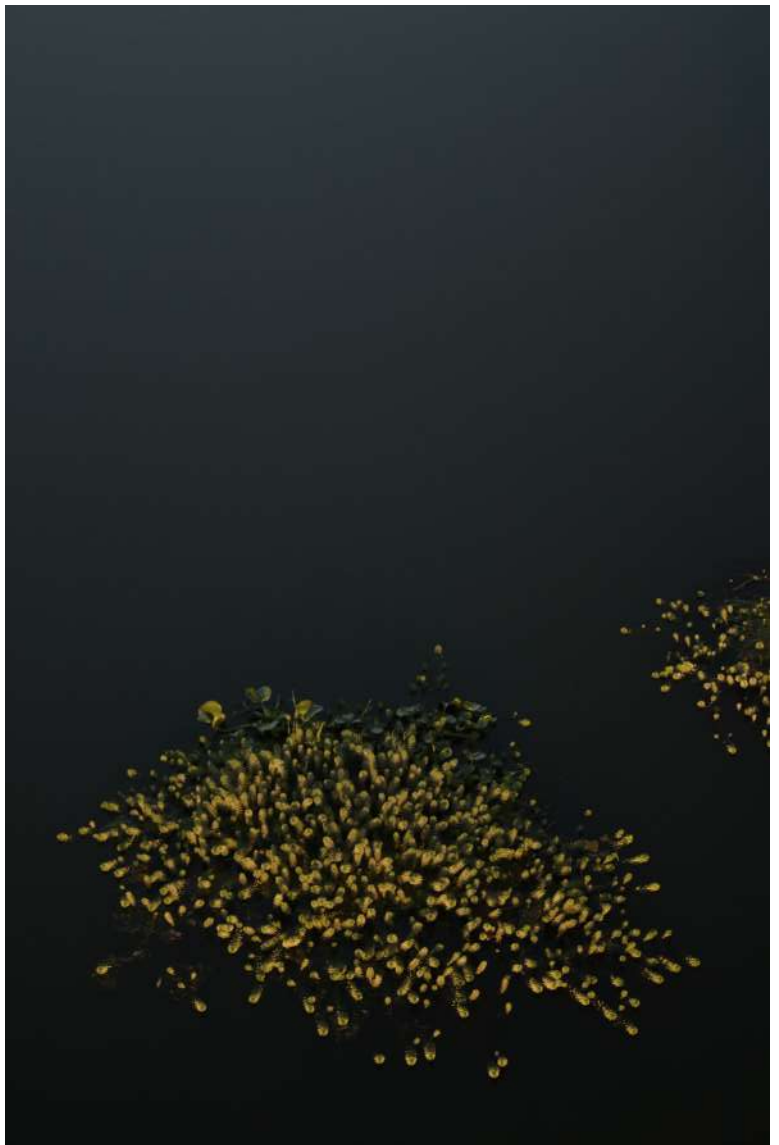
I immediately remembered the elephant when I received the petition "act now to start reversing biodiversity loss by 2030" for the Montreal Biodiversity Conference (COP15). The main concern of this petition was the recent publication of an article in a prominent scientific journal, which argued for the ineffectiveness of the 2030 targets. The authors argued that some species and ecosystems would take a long time to manifest the positive effects of meeting these goals. And this could be quickly interpreted as an excuse not to barricade the living room door just yet. But the elephant problem is much simpler than the loss of biodiversity on our planet. There are losses that are irreversible. The option of barricading the door later does not exist. That's why NASA is learning how to deflect asteroids away from Earth, even if the likelihood of that happening 160 years from now is the same as the probability of hitting the bullseye if you shoot an arrow with your eyes closed.

The good news is that the choice is ours, now, and each of us can and should put our own little brick into the barricade wall. You can start

right now by finding out a little more about the nature around you by reading this edition of GEIA. Knowledge is the foundation of all action. Did you know that in Coruche we have one of the national hotspots of fireflies, with 5 of the 10 species existing in Portugal? And that we can make plant-based



5 House sparrow (*Passer domesticus*).



4 Parrot's feather (*Myriophyllum aquaticum*) in the Sorraia river.

leather from carob beans? Get inspired by the testimonies of those who decided to contribute to nature conservation with their own hands, by volunteering to help control exotic plants or by painting a mural about river pollution to raise awareness among the population. You can also find out about the results of the biodiversity monitoring carried out by Ambios Portugal in Coruche, and a project of the University of Évora in which the association collaborates. I bet you can read it all in less than thirty-two minutes.

Inês Roque

CONSERVATION

planned management of a natural resource, to avoid exploitation, destruction or negligence.



THE NATURE AROUND US

Due to the alterations in our design of GEIA, this edition has come out at the end of the year instead of the beginning, and, as such, we will include observations from our monitoring efforts from both 2021 and 2022. In 2021, still due to the pandemic, we did not complete any organised monitoring of the river, and as such the results from that year are from occasional sightings. In 2022, we restarted efforts to sample the wildlife around the Sorraia river, so far completing two sessions, once in May and another time in October, checking mainly for species of plants, birds, and invertebrates, but registering anything seen. On the following page are the graphs with the joined data from both 2021 and 2022.



8 Cellar slug (*Limacus flavus*).

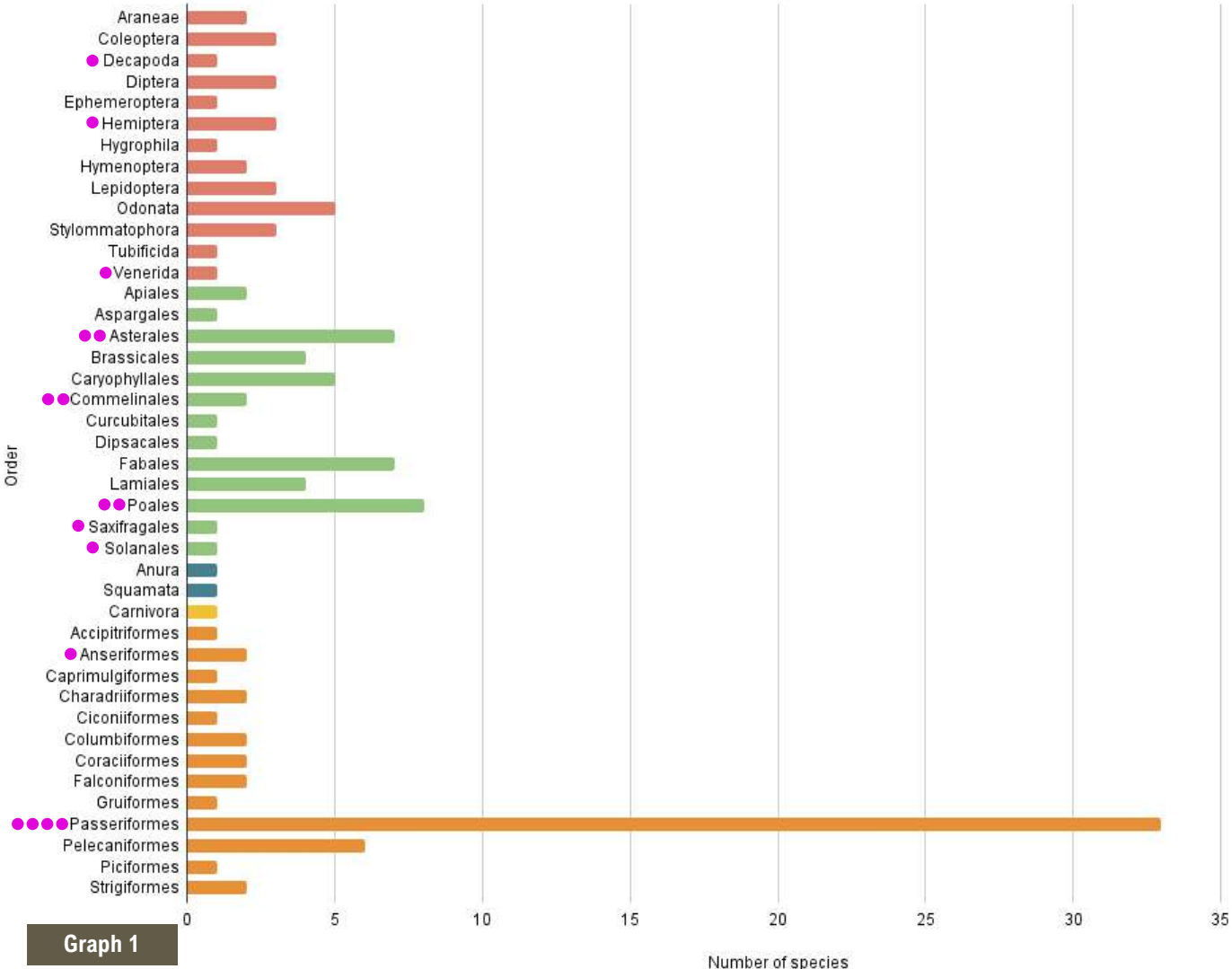


9 Nymph of a dragonfly found during the monitoring efforts.



10 Parrot's-feather (*Myriophyllum aquaticum*).

Number of species per taxonomic order found throughout the monitoring of the Sorraia river in 2021 and 2022



Graph 1
LEGEND
● Indicates the presence of an exotic species within the Order it is next to.
■ Invertebrates ■ Plants ■ Reptiles and Amphibians ■ Mammal ■ Bird



(11) Red swamp crayfish (*Procambarus clarkii*); (12) common water hyacinth (*Pontederia crassipes*); (13) night heron (*Nycticorax nycticorax*); (14) white stork (*Ciconia ciconia*); (15) Teófilo Trindade bridge in Coruche; (16) caterpillar of the moth *Acronicta rumicis*.

We'd like to point out a few species that we either hadn't registered before or that were particularly interesting to see or important to register. Throughout these two years, several Iberian tree frogs (*Hyla molleri*) were spotted along the river in front of the village, their bright green skin often giving them away when they aren't hidden in the leaves. A squacco heron (*Ardeola ralloides*) was observed frequently between the river and the wet areas surrounding the village, and a black-crowned night heron (*Nycticorax nycticorax*) was seen once, fishing in the small pond near the fluvial beach. During the monitoring in 2022, we found naidid worms (Family Naididae), dragonfly nymphs, and mayfly nymphs, and as the sampling was occurring, a pin-tailed wydah (*Vidua macroura*) and a wryneck (*Jynx torquilla*), which we



17 Iberian tree frog (*Hyla molleri*).



18 Naidid Worm.

hadn't observed in the area previously, were heard at the location! Unfortunately, the pin-tailed wydah is only one of a fair few exotic species we identified along the river. In total, we identified three exotic invertebrates (red swamp crayfish (*Procambarus clarkii*), Asian clam (*Corbicula fluminea*), and Southern green stink bug (*Nezara viridula*)), eight exotic plants (kidney-leaf mudplantain (*Heteranthera reniformis*), capeweed (*Arctotheca calendula*), tall flatsedge (*Cyperus eragrostis*), horseweed (*Erigeron canadensis*), parrot's-feather (*Myriophyllum aquaticum*), common water hyacinth (*Pontederia crassipes*), knot grass (*Paspalum distichum*), and cock's-

egg (*Salpichroa organifolia*)), and five exotic bird species (Egyptian goose (*Alopochen aegyptiaca*), scaly-breasted munia (*Lonchura punctulata*), common waxbill (*Estrilda astrild*), yellow-crowned bishop (*Euplectes afer*), and the aforementioned pin-tailed wydah (*Vidua macroura*)). Exotic species are often hard



19 Squacco heron (*Ardeola ralloides*).

to control, so registering their presence is one way we can contribute to their monitoring, and in some cases, mitigation. If you are interested in registering your observations, of either exotic or native species, you can do so by uploading observations within the area of the project Rio Sorraia—Percorso Pedestre da Cegonha (PR1 CCH) on iNaturalist. Feel free to join the project too to keep up with updates!

RIVER POLLUTION

Pollution is one of the largest problems conservation efforts faces at the present moment. It is a global concern, as pollution affects everything from urban areas to unpopulated zones. Pollutants can be of natural origin, but the majority are created by humankind, including chemicals such as pesticides and plastic debris, and can be divided into three major categories: air, land, and water pollution. Although all forms of pollution must be tackled, in this article we will be focusing on water pollution specifically, and on a local project tackling this issue.



21 Someone picking up plastic waste from a beach.

Ocean pollution is of major concern, seeing as it not only affects water quality, but also harms aquatic animals directly, as many species mistake plastic bags for food and try and ingest them, causing complications or death. Ocean pollution comes not only from the shores of beaches, but also from plastic debris blown into the water from land or pollution present in rivers that flows into the sea.



22 "Cigabeata" exhibition set up during the Coruche Biental in 2021.

In 2021, the year both the following projects were conceived and made, Coruche inaugurated its fluvial beach, a location that has seen high usage by residents and visitors alike throughout the warmer months. Due to this frequent use, Carla Tadeia and João Leitão felt "it was their duty to inform its users, so that they may also become concerned about fighting pollution on the river's margins".

According to the Oceano Azul Foundation, in Portugal, the highest-ranking pollutant in our seas is the cigarette butt. It was with this in mind that Carla and João created their project "Cigabeata" to promote the proper disposal of cigarette butts. They first presented it during the Biental in

Coruche in 2021 (a biannual arts contest that takes part in the village, where the projects are set up in the streets of the village so everyone may visit them). According to Carla "being a smoker myself, I was concerned about the number of cigarette butts that are thrown on the ground every day; Cigabeata came about as a way to inform people of this issue and to get them to stop throwing cigarette butts, as well as other waste, onto the sand of our fluvial beach".

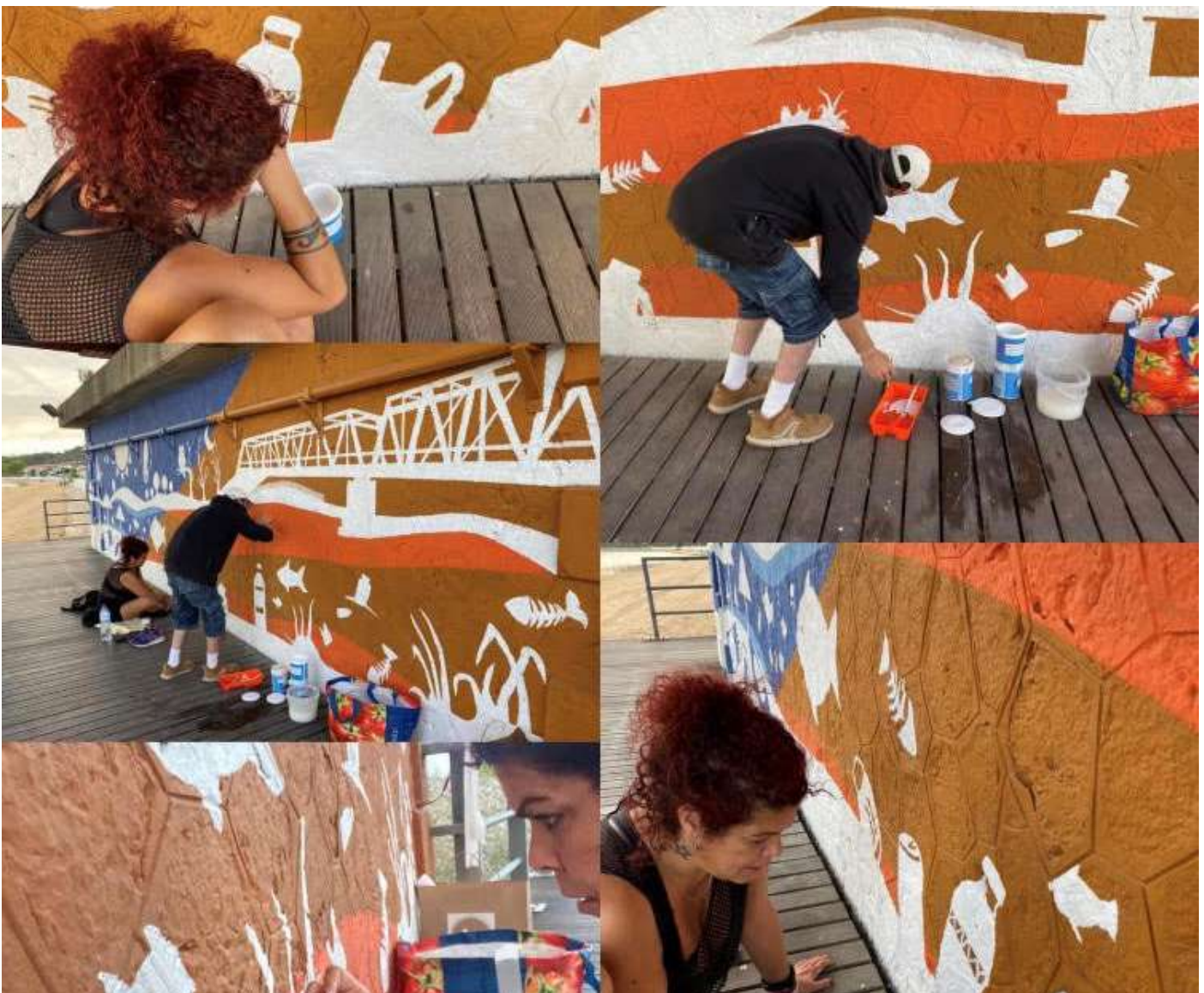
At the same time, they presented their painted mural SOS PLANETA - ALERTA AZUL (translating to SOS PLANET – BLUE ALERT), which depicts the Sorraia river in duality, one side polluted, and the other clean and with thriving wildlife. With this representation, they hope to pass the message that "we all need to be respectful of our planet, being responsible for its wellbeing through small daily actions and that they aim to educate all generations about good practices related to our planet, our rivers, and our seas".

These projects leave a legacy of conservation goals for current and future generations to learn from.

Shirley T. van der Horst



23 Carla Tadeia and João Leitão painting the mural for their project SOS PLANETA—ALERTA AZUL.



24 Carla Tadeia and João Leitão painting the mural for their project SOS PLANETA—ALERTA AZUL.

THE BARN OWL IN THE TAGUS ESTUARY: THE TYTOTAGUS PROJECT



When we see a white bird flying at night, it is very likely that it is a Barn Owl. This owl lives very close to humans. It usually nests in buildings and hunts in agricultural fields. It eats mainly mice and voles, although it includes in its diet many other prey such as invertebrates, amphibians, and birds. It is a generalist and opportunistic species, i.e. it hunts prey that exists in larger numbers and are easier to capture. For this reason, it can be an important ally in agriculture. There are cases where farmers have been able to greatly reduce the use of pesticides against rodents, after installing nest boxes for this owl on their farms.

In Portugal there is a very important area for the Barn Owl, the floodplain of Vila Franca de Xira, in the Tagus estuary, where many Barn Owls gather during a critical

phase of their life cycle - the post-natal dispersal period. At this time, the juvenile owls leave the nest where they were born in search of a place to settle down. This is a period when they are fragile, because they don't have much hunting experience yet and spend a lot of energy exploring the world. More than half of the owls that are born each year are roadkilled during the post-natal dispersal, due to their inexperience and the "temptation" to hunt near the roads, as there is a lot of prey that take refuge on the roadsides.

In the TytoTagus Project we have been monitoring nests and ringing juveniles since 2006. Between 2010 and 2013 the project also included the radiotracking of 40 juveniles marked in the nest. We were only able to track 12 of these owls during dispersal because we lost contact with 15, and 13 died before dispersal. Of the owls tracked during dispersal, only two remained in their home area. These two owls were tagged



26 Floodlight used during the transects to spot owls.



27

The transects are done by car, with maximums on and a floodlight to help visibility.



28

Full moon also aids visibility and often equates to more owl activity.

in Coruche and tracked for 10 and 16 months, one of them remaining less than 6 km and the other less than 13 km from the original nest. But most of the owls tracked during dispersal approached the floodplain of Vila Franca and travelled an average distance of 21 km, up to a maximum of 39 km.

Thanks to this tracking, we know that Barn Owls do not usually use buildings for shelter during dispersal. They usually take refuge in forests, less than 3 km from their hunting grounds, and can stop for more than five months in the same place before they proceed the dispersal. They also often take shelter in large trees near roadsides and tree lines. But the owls we detected hunting in the Tagus estuary came from home sites up to almost 12 km away, which could mean a higher probability of being run over in this area. On national road 10, between Porto Alto and Vila Franca de Xira, we found 1.13 roadkilled owls per kilometre, which is more than double the frequency of owls killed by collision with vehicles in southern Portugal.

This concentration of Barn Owls in the floodplain of Vila Franca during post-natal dispersal allows us to count active owls at night via car transects. We have been doing these transects in the TytoTagus project since 2007 to monitor the abundance of Barn Owls. The route is 22 km long and is covered at a speed of ca. 40 km/h twice a month, between August and December, with the help of a spotlight to illuminate the owls. In the first year we counted up to 110 Barn Owls on one of these transects. Fifteen years later, we counted a maximum of 43. Besides this monitoring, there is a national census of nocturnal birds, the NOCTUA PORTUGAL Programme of the Portuguese Society for the Study of Birds, which also tells us that the Barn Owl population is decreasing. It is important to know this owl better and to collaborate in its conservation. The first national census of the Barn Owl will take place in 2023 and everyone is invited to participate! To find out how, visit www.labor.uevora.pt.

Inês Roque

Researcher at Laboratory of Ornithology, MED, University of Évora



29

Floodlight used during the transects to spot owls.



The TytoTagus Project is developed by LabOr – Laboratory of Ornithology of MED - Mediterranean Institute for Agriculture, Environment and Development of the University of Évora. It began in 2006, as an action of the INTERREG III-C Ripidurable project, and was later supported in the scope of the Business & Biodiversity initiative through Companhia das Lezírias and co-financed by QREN/INALENTEJO 2007-2013 under the ECOMEDBIRDS project. Currently, the TytoTagus project is funded under a collaboration protocol between Companhia das Lezírias and LabOr. The project holds the longest continuous series of data on the Barn Owl in Portugal, which has been integrated in instruments such as national atlas and European reports. This project has developed several actions within the research and conservation of owls, in collaboration with national and international entities, such as the Institute for Nature and Forest Conservation (Portugal), Portuguese Air Force, University of Aveiro (Portugal), University of Murcia (Spain), University of Lausanne (Switzerland), The Global Owl Project (USA) and The Barn Owl Trust (United Kingdom).

From 2018 to 2022, Ambios Portugal has collaborated regularly in the monitoring of nests and in the transects in the Tagus Estuary.



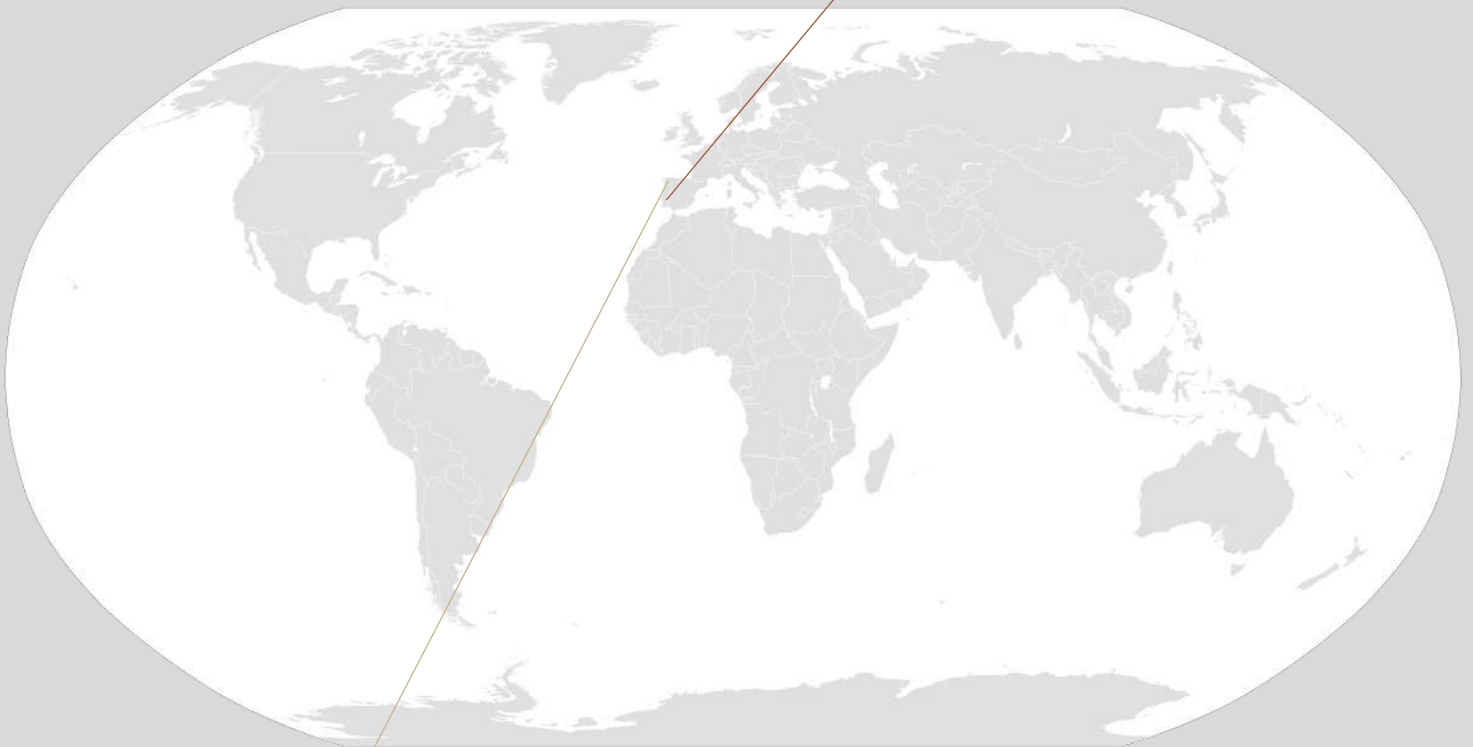
Juvenile Barn Owls being ringed during the monitoring of nests. Ringing is a harmless procedure that helps scientists keep track of populations and understand patterns of migration, dispersal, longevity, and other factors.



CLÁUDIA LOPES

MARCA-ADL

MONTEMOR-O-NOVO, PORTUGAL



SUSTINEA

OURENSE, SPAIN

MARIANA MOREIRA



IN MOBILITY

MARCA-ADL MONTEMOR-O-NOVO, PORTUGAL



IN MOBILITY

MARCA-ADL *MONTEMOR-O-NOVO, PORTUGAL*



CLÁUDIA LOPES

VOLUNTEER

For two months I had the opportunity to be part of a volunteer project with Marca – Associação de Desenvolvimento Local, incorporated in the LIFE Volunteer Escapes – Volunteer with European Solidarity Corps for Activities in Portugal with Ecological Sense (LIFE17ESC/PT/003). This association, with its headquarters in Montemor-o-Novo, has the mission of promoting the development of rural areas, by supporting and participating in local actions of a social and cultural nature, environmental conservation and enhancement of natural and human heritage, and entrepreneurship.

The volunteering project I worked in was within the association's activities of promotion and communication of environmental conservation; as an international project, the volunteering actions fostered an exchange of experiences and cultures between several associations and volunteers that were then applied locally. The varied tasks performed by us were mainly done at the headquarters and plant nursery of the organization (maintenance and operation of the nursery, simple secretary tasks,



34 Volunteers planting trees and shrubs in an urban area.

etc.), but it was also frequent to have practical conservation activities (planting of endemic plants, control and monitoring of exotic plants, etc.) within the municipality and surrounding areas.

A day in the life of a volunteer working at Marca-ADL was usually divided into a practical conservation action (in the morning) and plant nursery work (in the afternoon); we would often start the morning learning and applying exotic control techniques, near Montemor's Castle, and after lunch we would go to

the nursery, where a lot of tasks, with different priorities, awaited, or we would stay at the headquarters, helping with the production of communication materials. Sporadically we would travel to neighbouring villages to do recovery work, for example, planting native species in urban areas to promote shading and biodiversity, which may also function as sound barriers near busy roads.

The environmental conservation works were mostly control and monitoring actions of invasive exotic species, planting of native species and recovering of protected areas. These actions occur throughout several areas of Montemor-o-Novo's municipality, like the montado's ecopath, the Castle's surroundings, urban areas and even the property where the plant nursery is installed. The target exotic species are mainly the several acacias existing in the area (*Acacia dealbata* and *Acacia melanoxylon*), giant cane (*Arundo donax*) and tree of heaven (*Ailanthus altissima*). Usually, after the removing/controlling of exotic individuals there would be one or more follow up sessions of planting native species and monitoring the intervened area, so it can recover.

Marca-ADL's nursery is one of the main work focuses of the association. Built during the LIFE LINES project, it is where most of the plants used in this project were produced; nowadays it hosts around 150 native species (*Quercus* spp., *Myrtus communis*, *Arbutus unedo*, *Ruta angustifolia*, *Rhamnus alaternus*,



35 Area where native plants have been planted after the removal of exotic species from the genus *Acacia*.

etc.), functioning both as a nursery and as a sale point. In here, space maintenance and organization is essential for a good optimization of the work carried out, so some of our tasks included transporting plants in different life stages to different areas, taking into attention their species and habitats. We also learned how to take care of the plants, from the several methods of seed treatment, seeding and transplanting/grafting, to watering and weeding care, acquiring practical knowledge of identification of Portugal's native flora on the way.

Usually this kind of project would involve activities with local public participation, like schools, events and fairs; however, due to the global pandemic situation, a lot of these activities had to be reduced (or even cancelled) and activities between organizations and volunteers had to be done online. Even then, Marca-ADL provided a rich learning experience for its volunteers, albeit more



36 Cláudia preparing the ground for planting.



37 Nursery where native plants are grown for the association's activities.

locally focused, always encouraging teamwork.

It was an intense and challenging two months, as I had no knowledge of many of the tasks required, but I don't regret the opportunity. Working as a volunteer in Marca-ADL was a very enriching experience, for the environmental work that I did, for the knowledge that I gained, both on a technical and personal development level, and for the friendships that I developed with the team, volunteers, and workers.



38



39

(38) Cláudia transplanting saplings and (39) scouting out the implementation area for planting native species.



RUA LUÍS DE CAMÕES Nº16
7050-260 MONTEMOR-O-NOVO
PORTUGAL

CONTACTS



marca@marca-adl.pt
ambiente@marca-adl.pt

social@marca-adl.pt



<https://marca-adl.pt/pt/>



+351 266891222



OUT MOBILITY

SUSTINEA OURENSE, SPAIN



OUT MOBILITY

SUSTINEA OURENSE, SPAIN



MARIANA MOREIRA

VOLUNTEER

It's been almost four years now, coming up in January 2023, that I started my seven 'sustainable' months in the Galicia region of Spain.

Between turning in my master's thesis and defending it, I participated in a mobility (Nature Conservation Training) through Ambios Ltd., which allowed me to deepen my love for environmental education. Throughout the three months in England, I contacted with a diverse public, from children to people with learning difficulties, and professionals in the area of conservation, etc. Later, it was this network that led me to discover the European Voluntary Service (EVS), and to accepting a volunteer position with *Sustinea* – a non-governmental association (NGO) located in Ourense (Galicia), which develops work in the areas of sustainable development, and social and environmental education. Having recently finished my academic career, this volunteer opportunity was a way for me to gain work experience and open up future possibilities.

There was four of us, one volunteer was Russian, the other Polish, the third Greek, and then me, from Portugal. Amongst us we spoke English, and during communication with the association we spoke Spanish. Due to the proximity of Galician and Portuguese languages, I was often the intermediary and the one who would translate from Spanish (both Galician and Castilian) to English. Although Spanish is close to Portuguese, before



42 Mariana and the participants from the Permaculture course.



43

The volunteer team; Sacha (Rússia), Mariana (Portugal), Karolina (Polónia) e Thomai (Grécia).

this volunteer experience I had practically no fluency in it. I learned through day-to-day interaction with the language, as well as through the lessons we had during the first month of the volunteer period. A normal day for us began at 8 o'clock in the morning at the office, our usual meeting point, and ended near three in the afternoon at the same place or at another location, depending on the plan for the day. The other volunteers and I shared an apartment in the city centre, provided for by Sustinea, which was around a 30-minute walk from the office. During January, we crossed the bridge while it was still

dark; later Sustinea changed locations, and ended up closer to Sustinea's communal allotments, where we frequented once a week. The rest of the days were spent planning future activities, or aiding in environmental education activities. These were often visits to school and colleges to raise environmental awareness. The year we were there, the main focus of these activities was insects. I join these activities when they were already in the second phase, where we played educational games using the information they had learned in the last session. We also built an insect hotel that would be placed in the school's outdoor area.

Beyond the joint work we did for the organisation, each volunteer also had an individual project to work on. Connected to the insect theme, my project, called PoliniCity, aimed to study the best location for a green corridor that could connect large green areas and urban gardens, creating a network of access for insects within the city.

Beyond these continual activities and projects, there were also occasional commemorative activities such as those to celebrate International Women's Day, among others. Throughout my placement here I noticed the commitment of this country to not only social but also environmental awareness. I also had the opportunity to participate in creating a training course on Permaculture and to aid in an exchange, not to also mention the moments where we participated in other courses in Cantábria and Málaga, and made contact with all the other European volunteers, from all over the country.

Volunteering like this was a very intense and rewarding experience. The amount of knowledge gained through the people we met must be exalted. EVS is a program focused on this principal – integrating diversity, incentivising creativity, fostering knowledge exchange between citizens of the European Union and of the world, creating a global and solidarity-centred environment, focusing on social and environmental issues. Experiences like these are what we make of them, but also what is permitted to us to experience. In this case, it was a liberating situation, and one that made me feel almost completely integrated in the community.



44

Mariana working during one of Sustinea's activities (World Environment Day)



AVENIDA DAS CALDAS, Nº 8

ENTRECHÁN DEREITO

32001 OURENSE

SPAIN

CONTACTS



info@sustinea.org



<https://www.facebook.com/sustinea>



<http://www.sustinea.org/>



(+34) 988 782 964





KEEPING A NATURE JOURNAL



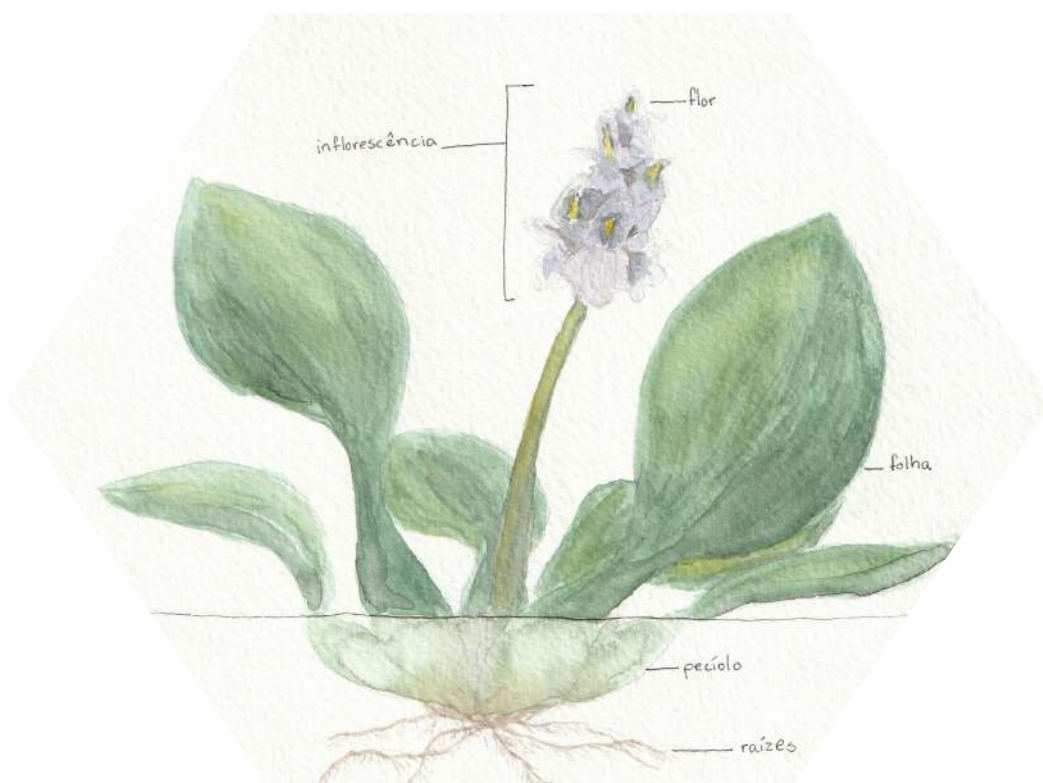
Shirley Therese van der Horst
Biologist and illustrator



WHAT IS A NATURE JOURNAL?

Nature journals are a visual and creative way of keeping notes on the natural processes and species in our local area, or any area we may visit. Their objective is to be informative, giving us clues on which species may be seen at certain times of the year, the behaviour these species may adopt, how they interact with each other and their habitat, and how populations can change over the years, among other data that can be gathered. At a personal level, nature journaling is good at tackling stress, connecting us to nature and allowing our brain time to focus on what we are seeing and how to represent that on paper. Thinking about how it can make us citizen scientists, data collected through nature journaling can be very useful for understanding local natural processes, changes in species diversity, and communication of this information to the general public in a visually appealing and simple manner.

Here, I have decided to share a different experience of nature journaling each time, to hopefully inspire you to try it out!



CLUXEWE RESORT

VANCOUVER ISLAND, CANADA



Out there, everything felt wild – and indeed it was. Although while we were there the weather was relatively tame, it felt like something was boiling just under the surface, waiting to burst forth and lash against the coastline. We had the luck of catching a pair of bald eagles hunting for fish, which was successful, and then watching an aerial scuffle between one of the adults and a juvenile.

On the beach itself, there were all manner of seaweeds washed ashore, colouring the pebbled landscape, and in the sea bobbed many birds, alongside a fishing boat or two. We didn't spot any whales, but I feel they would've been right at home there.

It was raining a fine mist the entire time we were out walking, so I did not paint and draw on the spot – instead, I took as many photos as the weather allowed and used them as a reference once we were back inside the camper van. There was no internet there, so it was better to find stuff to do that did not require it. Beyond the few sketches I did there, the photos I took that day have been a source of inspiration for me over the years since, and once and a while I've gone back to them and selected one to paint or sketch. When I do, I am transported back to the wild feeling there, the lapping of the



ocean against the pebbles, a lone cry or two from a seabird, the rain cold and wet on my face. To me, this is the power of nature journaling – the ability to fully recall past experiences in a beautiful, creative way.






ID

FIREFLIES AND GLOW-WORMS

46



Kingdom	Animalia
Phylum	Arthropoda
Subphylum	Hexapoda
Class	Insecta
Order	Coleoptera
Family	Lampyridae



When we mention insects, many people get squeamish. They are quite different animals compared to us, and often have some negative effects on our lives, such as the caterpillars that eat our cabbages or the mosquitoes in the summer and, due to this, most people avoid or are afraid of them. Of course there are exception to the rules, such as butterflies, ladybirds and bees (as long as their hives are far from us), which whether it be due to their use or their pleasing look, we like to have near. We also have some insects that have fascinating adaptations that to this day intrigue both kids and scientists, even though they are rather hard to spot: fireflies and glow-worms.

These small beetles (Coleoptera), through a chemical reaction, can produce light! They use this light to communicate, to confuse their prey and the alert to predator presence. This ability to produce light is present all the way from when they are eggs into their adult phase. Once common, fireflies are suffering a sharp decline due to habitat loss, pollution, and pesticide use that also affects it's prey (snails, slugs, and worms). Fortunately, we can still find them in some places, and Coruche is one of them. At the moment, Vila Nova da Erra is one of the national hotspots, with 5 out of the 10 species of fireflies we have in Portugal present here (two pending confirmation)! They are the Iberian glow-worm (*Lampyrus iberica*), the great spectacled glow-worm (*Lamprohiza paulinoi*), the Portuguese firefly (*Luciola lusitanica*), the Mediterranean pale glow-worm (*Nyctophila reichii*) and the lesser black glow-worm (*Phosphaenus hemipterus*). To protect these species, there has been a collaboration between both national scientists and international experts on this group, and these sightings are integrated into the Fireflies and Glow-worms of Portugal guide (2015) and a private piece of land is part of the Lightalive Reserves.

Luis Guilherme Sousa



(47) Larva of a lesser black glow-worm (*Phosphaenus hemipterus*); (48) larva of a Mediterranean pale glow-worm (*Nyctophila reichii*); (49) larva of an Iberian glow-worm (*Lampyris iberica*); (50) male and female adults of a great spectacled glow-worm (*Lamprohiza paulinoi*); (51) larva of an Iberian glow-worm (*Lampyris iberica*) eating a slug; (52) from left to right: larva of a great spectacled glow-worm (*Lamprohiza paulinoi*), larva of a Portuguese firefly (*Luciola lusitanica*), larva of an Iberian glow-worm (*Lampyris iberica*).

The photograph (46) seen on the first page of this article is of larvae of the great spectacled glow-worm (*Lamprohiza paulinoi*) (left) and the Iberian glow-worm (*Lampyris iberica*) (right).

SUSTAINABILITY

of, relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged



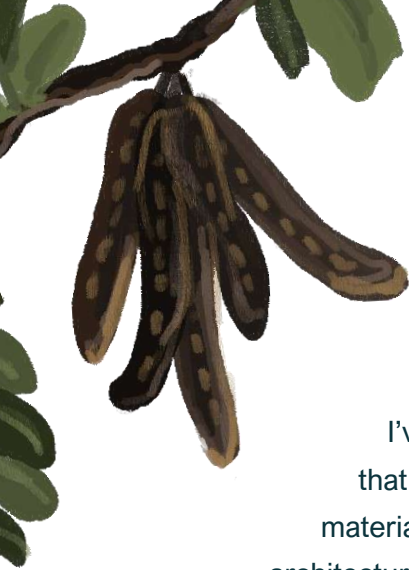
THE CREATION OF ALFARROBA.TEX



MÓNICA GONÇALVES

In August of 2021, while on holiday, I began to think it might be time to restart my investigation work, after my maternity leave. Yes, I had a beautiful baby girl called Violeta in 2020, who demanded all of mum's attention. However, my work is something that motivates me greatly, and to be a fun, creative and playful mum, I needed to feel accomplished again. Being from a family hailing from the Algarve, and seeing as I had the amazing example of my paternal grandmother—who between the 60s and the 90s was the largest producer of oranges in the Algarve—entrepreneurship runs in my veins. This inspired me and made me remember one of the things that stuck with me the most from when we'd visit her land, the day my father took me to see the carob trees. I confess that, at the time, the smell was so strong, that I didn't immediately fall in love. However, our tastes change over time. It was during a flashback to those times that I thought "I'm going to study more about carob", and before I knew it I had this fruit, full of potential, which to this date had only been explored by the food industry, in front of me. I asked my father for 10 Kg of carob, and, seeing as he, now 80 years old, is not sceptical about my ideas (in fact quite the opposite), he went to the Algarve and showed up on my doorstep with a 50 Kg of carob. Yes 50 Kg! Enthused, he let me know that in the end he wanted a sample, as a trophy for helping me source the material.

I got stuck in, and began my investigation process, which ran from August of 2021 to March of 2022. Finally, the day came... I did it! I always feel very happy, with butterflies in my stomach when I finally achieve the final result. Usually, it's a good sign.



There it was! A plant-based leather made of carob, 100% natural, super resistant, with a very pleasing aroma and a nice brown colour... fit for a Prada bag (I wish!).

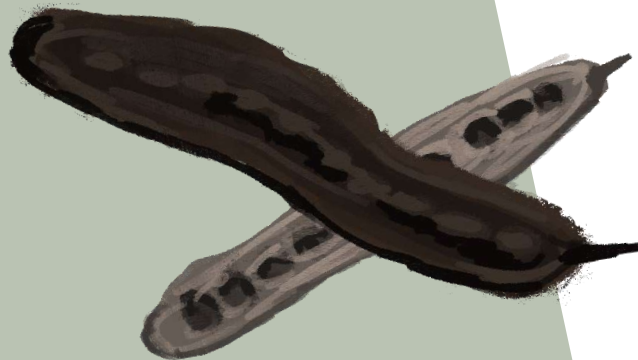
I've worked in the investigation sector since 2011, I have had many great challenges that tested my creativity and technical know-how... but I have to say, "this is the material!". No chemicals, no artificial manipulation, Alfarroba.Tex responds to any fashion, architecture and interior design applications with ease.

This is an emotional telling of the story, but to give you the technical details of Alfarroba.Tex:

Characteristics of the material:

- Resistant to traction, stretching, and abrasion;
- Elastic;
- Malleable;
- Can be cleaned with a damp cloth;
- **100% natural (80% of carob in the carob substrate / 20% of cellulose and natural rubber waste);**
- Excellent woven finish;
- Great performance as a sewing medium;
- 100% artisanal product;
- It's thickness varies due to the natural process of it's manufacturing;
- The underside of the material is composed by small holes on the surface, so that the material can breathe. The upside is a smooth surface.

Important note: Alfarroba.Tex is powdered with talcum powder to help maintain it's properties, clients should wipe off the excess with a dry cloth. The powder should not be removed in it's entirety, so that the substrate remains apt for use.



SUSTAINABLE RECIPES: FIRE CIDER

Fire cider is a natural tonic that claims to boost immunity and help fight colds and flus. Although no scientific studies have proof of this, anecdotal evidence from users claims that it helps overcome flus and colds faster than normal, and I have to agree! Many of the times I started feeling a scratchy throat or more sniffles than usual, the day after I'd taken the fire cider it cleared up. As such, and seeing as we are in flu and cold season, I figured I'd share the recipe here.

Ingredients

- 1L apple cider vinegar (preferably unfiltered)
- 10 black pepper corns
- 2 hot peppers
- 2 sprigs of thyme*
- 2 sprigs of rosemary*
- 1/2 an orange cut in slices
- 1 lemon cut in slices
- 1 hand-sized piece of ginger cut into slices
- 2 tablespoons of honey**
- 6 cloves of garlic, peeled
- 1 onion peeled and cut in slices (red or yellow)
- 2 cinnamon sticks
- 1 tablespoon of cloves
- 1 tablespoon of mustard seeds

*fresh is preferable but 2 pinches of dried leaves is a good substitute.

**some people add the honey in after straining the liquid, but I find adding it in right away doesn't make too much difference.

54



Place all ingredients in a sterilised air-tight container and take note of the date. Leave for 3 weeks in a dark, cool place, giving it a shake every day. Once ready, strain liquid through a fine sieve. Keep in an air-tight container in the fridge and use within a year. Can be taken as a shot or added to salad dressing or with water (even as a tea with extra honey!) if the taste is too strong.

Shirley T van der Horst

AUTHORSHIP OF PHOTOS AND IMAGES



Name of the author	No. of the photo or image
Ambios Portugal	Graph 1
Carla Tadeia e João Leitão	22-24
Cláudia Lopes	33-40
Inês Roque	31
Luís Guilherme Sousa	46-52
Maria Ortigosa	21
Mariana Moreira	41-45
Shirley T. van der Horst	1-19, 25-30, 32, 53A, 53B, 54, 55, 56

All illustrations are by Shirley T. van der Horst.

Cover photo

Dandelion flower with its seeds formed
by Shirley T. van der Horst

Back cover photo

Heliotaurus ruficolis
by Shirley T. van der Horst

Technical sheet photo

Insect from the genus *Agapanthia*,
commonly referred to as longhorn
beetles
by Shirley T. van der Horst



HOW TO FOLLOW OUR WORK

BECOME A MEMBER

<https://www.ambios.pt/>

FOLLOW OUR INSTAGRAM

@ ambiosportugal

LIKE OUR FACEBOOK PAGE

@ ambiosportugal

FOR MORE INFORMATION

info@ambios.pt

Observatório do Sobreiro e da Cortiça

Zona Industrial do Monte da Barca, Lt. 41

2100-051 Coruche,

Portugal