EUKI-project Humus per la Biosfera Q3 2021:
Young international volunteers meet in Sicily to contribute to climate action

The EUKI project "Humus per la Biosfera", implemented by Manfred-Hermsen-Stiftung (MHS) and Giacche Verdi Bronte (GV) focuses on carbon sequestration in agriculture, accompanied by scientific research, municipality composting and environmental education for school children. The two-year project started in August with the arrival of European volunteers and students, who are going to join the different activities and transfer the lessons learned into their home countries. Today GV hosts 11 young people from Germany, Holland, Polonia, Spain and Colombia.



Volunteers learn about the local agriculture from Prof. Paolo Guarnaccia (Uni Catania) and Giuseppe Rizzo (Sicilian Agri. Department) / first photo, second and fourth from left; participation in harvesting Bronte's speciality: Pistachios.



Traditional hand sowing of a mixture of local seed like vetch, sulla, barley, black and white oats for the first field experiment gets fulfilled by GV's president Gino Montagno (centre photo) together with the volunteers.


Left: One of the weekly Italian lessons with Selin Poti (second from right) /Right: First scientific study gets discussed with the Dutch bachelor student Pippeljn Wijnen, Prof. Guarnaccia, GV and MHS staff

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EUKI-Project "Humus per la Biosfera" Q4 2021– Knowledge gain and idea exchange

Aiming on humus growth and carbon sequestration in Sicily's agriculture, the project starts with diverse communication and formation events, organizing and discussing ideas and activities for the next two years.

08.10.2021 *Agriculture High School Bronte: The Conference "Soil quality and climate change" discusses sustainability topics of the project. 100 participants. Speakers: Senator P. Firrarello (Mayor of Bronte), Prof. G. Emmanuele (school director), Prof. P. Guarnaccia (Uni Catania), S. Hermsen (MHS), A. Aidala (GV) – from left to right on the first photo. Open discussion with pupils and teachers (also from similar schools nearby). The school becomes our project partner.*

11.11.21 *Natural history course during the Etna climb with Antonio Fresca.*
Photo at the left: The lava from the 2002 eruption on the northern slope of Etna destroyed some mountain huts on its fast way down the valley and stopped at this point, 8 km before reaching Linguaglossa.

14.11.21 *Experience exchange on outdoor environmental education methods between multipliers of the Alpine Club Sicily and GV staff and volunteers. The training of 60 participants took place along the bee trail on GV's education area "Bosco Brignolo", in 2018 enriched by contributions through the former EUKI project "Boschi per la Biosfera".*

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EUKI-Project "Humus per la Biosfera" Q4 2021 – Syntropic Agriculture is in planning

Agroforestry is an interesting approach to soil protection and shall be explored for its practicality in local crops.

Determination of suitable plots of land in Bronte for experimenting with Ernst Götsch's method "Syntropic Agriculture", established mainly in Latin America.

Picture left: Alessandro Rigano (Uni Catania, scientific assistant within the project), Jonathan Scharf (German student, intending Master's thesis on the topic), Gino Montagno (GV president), Dott. Salvatore Vinciguerra (GV staff, forest expert).

Syntropically planted areas are forest gardens that combine agriculture with forestry. They have a particularly high potential of carbon sequestration, as permanent pruning creates organic compostable matter that is incorporated into the soil, and below ground, after pruning, redundant roots die and naturally store organic material there. Soils basically remain covered and, in the best case, rooted. This soil protection prevents erosion, keeps moisture in the soil, invigorates soil activity, continuously returns nutrients to the soil, suppresses weeds, improves soil structure and water absorption capacity. (PPP slide J. Scharf)

***14.12.21** Formation on syntropic agriculture for GV-volunteers and 25 students of the Agriculture High School through a PowerPointPresentation by the master student Jonathan Scharf and the GV research assistant Alessandro Rigano.*
The agroforestry method "Syntropic Agriculture" shall become one of our model field experiments, accompanied by a scientific study with the involvement of pupils from the Agriculture High School in Bronte.
Parallel to this, the Agriculture High School in Paternò, will study an already syntropic working farm and share their experience with Bronte's pupils.

When planning a dense planting or interplanting between existing crops, one also has to consider the space for harvesting. Photo: The two volunteers Klara Bruns and Ruby Quarten help with the harvest of olives, they empty the net with the previously combed off olives.

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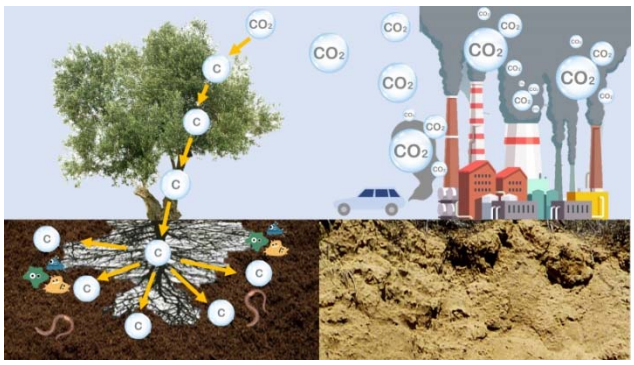
EUKI-Project "Humus per la Biosfera" Q4 2021 – Environmental education

The project starts with its most important activity: Inspiring children for nature and climate protection through composting. The environmental education is divided into two units per school class, a theoretical one in the classroom, which we now do in winter, and a later, practical one in the schoolyard on compost building.

From 10.11.2021 to 23.11.2021 *lessons and small soil experiments were fulfilled in Bronte's elementary schools "Circolo didattico-Plessi Marconi", "Mazzini", "Sciarotta" and the middle school "L.Castiglione". 450 school children involved. (Monday 20.12.2021 there will be lessons with students from Maletto - due to the covid emergency, lessons will be held in distance learning on Zoom - with 90 students). Teachers: GV staff Lidia Marullo (photo above) and Andrea Aidala (left, together with volunteer Ingram Huisman).*



Pictures: Two from 37 slides of the PowerPointPresentation, which tells a story about the farmer Pietro's lessons learned on carbon storage, humus growth, soil fertility and healthy products. This PPP was mainly realized by GV's trainees and volunteers after a training on the topic.

Small experiments follow directly after the presentation to deepen the children's knowledge. Three types of soil (lava sand, compacted clay and humus) demonstrate their different water storage capacity. This explains the issues of water availability and erosion risk.

Per lesson only one of our volunteers could join (covid regulations). Photo left: the German volunteer Magdalena Markgraf helps to experiment.

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EUKI-Project "Humus per la Biosfera" Q4 2021 – Soil biodiversity assessment

We are curious to find out, if there is a difference of soil's life between extensive and intensive treated fields.

From 25.11.21 *the biodiversity study takes place at GV's recently bought (traditional) organic cultivated olive and pistachio field and the intensively used almond and pistachio field directly bordering.*

Photos from left to right: Trainees Teresa Freundorfer (Germany), Monika Szafraniec (Poland), Aurora Martin Gonzalez (Spain) and Gersey Vargas (Colombia) place insect traps and control them regularly.

Below: study area in Bronte

Green – organic study field
Orange – intensive study field

The study is not ready yet, but differences in the quantity of soil fauna is already noticed. Photo below: Aurora, Monika and Gersey.

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EUKI-Project “Humus per la Biosfera” Q4 2021 – Volunteer’s activities

The project participating volunteers try a more sustainable lifestyle, plant and experiment....



Composting and growing their own vegetables are of course part of the volunteers' daily routine.




Student Julia Kleinlein explores the practicability of Terra Preta in smallholder agriculture, so that the tree cuttings can serve as a CO2 and water reservoir in the soil when charred. Pictured here with Enrico Roets (South Africa), Ingram Huisman and Jonathan Scharf (Germany) during an experiment on plant carbonisation. At the end, feel, smell and taste test - good result!


A tree nursery for oak trees was established; the young trees will later be given as gifts to guests at baptisms, weddings, etc., thus raising awareness for the project topic of humus and climate protection.

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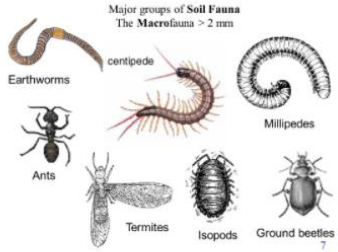
EUKI-Project “Humus per la Biosfera” Q1 2022 – Training on organic humus production and lumbriculture

Organic humus is a valuable ally for soil fertility and counteracts climate change through carbon storage

04.02.2022 - Lumbriculture training by Biotica Maletto

Giacche Verdi (GV) organised a training day for it’s staff, volunteers and trainees at "Biotica", an organic lombriculture farm in Maletto. The company owners Luca Tirendi (second from left in the photo) and Salvatore Caserta explained that this type of humus, which was made from manure and "Eisenia Fetida" earthworms, contains not only the main nutrients that plants need, namely nitrogen, potassium and phosphorus, but also many micronutrients such as calcium and manganese. In addition, earthworm humus, which contains large amounts of humic acid, also improves the condition of the soil.



The addition of organic humus, in order to revitalise the soil, results in a significant increase in the amount of organic matter, which in turn affects the physical properties of the soil: It improves the structure of the soil, facilitates the presence of beneficial aggregates through the formation of "bridge" bonds with the mineral components: this allows better aeration and infiltration of water; it also significantly increases the fertility of the soil, increasing the activity of microflora and microfauna.

ESC-volonteer Ingram Huisman and trainee Monika Szafraniec collect manure from GV’s donkeys and horses for the creation of their own compost.

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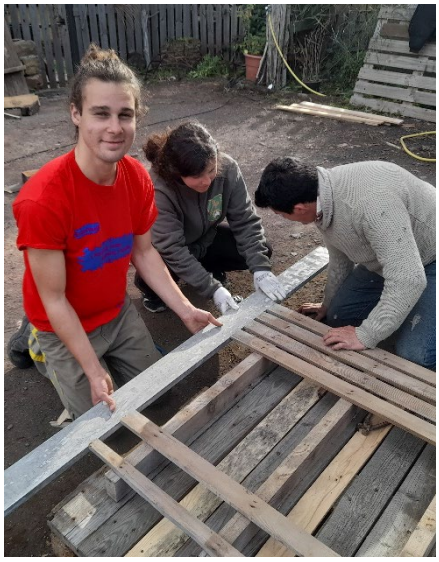
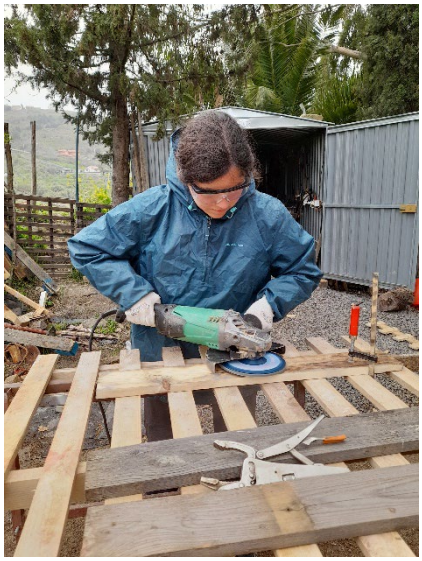
EUKI-Project "Humus per la Biosfera" – Q1 2022 Creation of composters and bird houses

In preparation of the second educational activity in schools, composters and bird houses are built




Under the supervision of GV staff Ricardo Sampieri volonteers Laura Serra, Ingram Huisman, Magdalena Markgraf und Ruby Quarten build composters for a total of 10 schools. At school the composters get filled by children with compost starting organic material. It is foreseen, that the fresh waste will be thrown in the box, which after the first mature process will be shovelled on a heap beside it, before being used as humus for the school gardens.


Volunteer Kerem Yasar from Turkey (left) and student Esperanza Smith from Chile build bird houses under the advice of Daniele Schiliró. Each school will get one of them.
Above: Proud volunteers Ruby and Magda.

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EUKI-Project "Humus per la Biosfera" Q2 2022 - Environmental education in the schoolyards

The second didactic phase are outdoor activities for the former indoor educated school children

The composters get installed, explained and filled.

For those schools, which still don't have a garden, a vegetable bed gets created with the children. (At the left and right, GV staff Antonio Fresca).

The activities incorporate also themes of biodiversity, both below and above ground - according to the motto: Humus is the basis of all life. A touch station with earthworms, shown to the children in self made boxes and the birdhouses that are hung in each schoolyard are deepen the knowledge.
A special fruit celebration day was organised by the school of Adrano, where GV repeated a lesson from the former EUKI project "Frutti per la Biosfera".

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EUKI-Project "Humus per la Biosfera" Q2 2022 – Biochar production

First step towards carbon sequestration in the soil and improvement of soil fertility



Photos first row above: Kon-Tiki building from an old cysterne by GV's president Gino Montagno and his workman Riccardo Samperi, with the help of volunteers Linda Schnabel (D) and Arda Basaran (TR).

Middle photo: shreddering of tree cutting

Photos left and below: Coal production by Riccardo Samperi, Gino Montagno, the volunteers Laura Serra (D), Kerem Yasar (TR). and Esperanza Smith (CL).

Until now, Giacche Verdi (GV) has shredded its tree cuttings and enriched the organic portion of the soil with the shredded material (photo at the right). However, this is not necessarily a permanent carbon sink. In comparison, plant carbon binds CO2 in the soil for more than a thousand years.
A very common but highly impacting method by local farmers is the tree cut burning directly on the field.

In order to convince farmers, not to burn their tree cuttings, GV experiments with biochar and will public the advantages.
Biochar is the solid material obtained from the thermochemical conversion of biomass in an oxygen-limited environment.
For the biochar production, Giacche Verdi builds a coal kiln from an old cistern. The charring takes place according to a certain method that leads to a high temperature of the charring process and prevents the formation of toxic gases. The charcoal will then be used as a component of Terra Preta.



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EUKI-Project "Humus per la Biosfera" Q2 2022- Start of soil analyses on organic fields

As soon as the first warm days of the year permit, the University of Catania starts soil tests on our experimental fields near Bronte. The humus content and growth will be measured over the next ten years using various factors. This long term investigations aim to gain a better understanding of possible humus-building agricultural measures.

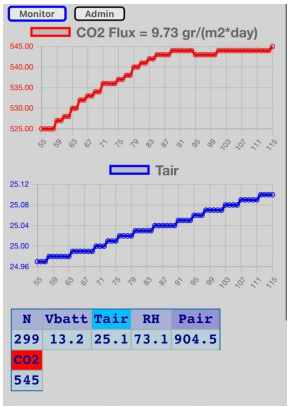
Giacche Verdi and University staff on the organic olive grove of Giuseppe Rizzo (second from right)

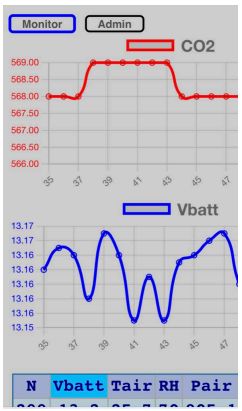
The various experiments like ground temperature measurent (below) and...

Prof. Paolo Guarnaccia (left, middle) with his students Marco and Luca Proto and Alfina Avellina (right) take vertical soil samples for lab analyses of porosity, CO2-oxygen respiration and other factors.

Luca places a metal ring in the ground, covered with foil, to distribute a certain amount of water evenly in the ring by quickly pulling away the foil. The time during which the water percolates into the earth gives clues about the soil's porosity and compression.

Surrounded by GV volunteers and with the help of Luca Saitta (above, left) Prof. Andrea Zimone (left) takes topsoil samples for analyzing the soil biological quality, based on microarthropods.





Prof. Domenico Longo (above) measures the soil respiration. The lower part of his self made CO2 accumulation chamber is an empty cylinder, which is open above the ground. The upper part contains the electronics which are able to measure the rise of CO_2 concentration from the ground, starting with the amount equal to the surrounding air (400 ppm). The soil releases CO_2 from the microbial respiration - the faster the graph rises, the more microorganisms are present. The device also measures temperature, humidity and pressure.

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EUKI-Project “Humus per la Biosfera” Q 2 2022 – Woodfire prevention

At the beginning of summer, we are busy in grass cutting on the public areas managed by Giacche Verdi. This work is necessary to prevent wood fire.
In 2021, Italy was the most affected country in the EU in terms of burnt area (151,964 hectares). Italy alone accounts for almost a quarter of the total burnt area within Natura 2000 sites, closely followed by Spain. The Italian most affected region in 2021 was Sicily (59,872 hectares). The effects of climate change, with low rainfall and long periods of drought, have exacerbated the problem. In Sicily over 80 years, some 200 mm of rain has been lost and the dry period has increased from four to five months per year.

Photo top left: Riccardo Samperi (GV head worker) cuts the dry grass at the Bosco Brignolo, a former landfill site, today an outdoor educational area managed in Bronte by the GV.
Photo bottom left: Ingram Huisman, a German volunteer of the GV, cleans the Blue Garden Bio Park in Mascali, a former degraded area now renaturalized and managed by the GV in synergy with the inhabitants of Mascali.
Photo below: GV volunteers Meltem Koyun, Yagmur Yenilmetz (Turkey), Ying Huang (China) and Loretta Miehle (Germany) work to prevent fires at the Bosco Brignolo area.

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EUKI-Project "Humus per la Biosfera" Q 3 2022 – Oak protection on Mt. Egitto

The Humus project gives another important push for saving a unique ancient oak forest at the Etna

52 monumental oaks on the lateral Etna crater Mt. Egitto (below) are still in risk of death caused by the shadowing young pine trees, planted in between. Giacche Verdi (left photo above: Andrea Aidala, Gino Montagno, Lidia Marullo) and the Manfred-Hermsen-Stiftung re-start the pressure on the responsible institutions for a (second) cut of surrounding pines. Our methods are dialog accompanied by public awareness, e.g. by newspaper and tv reports (photo above left), and scientific surveys.

Our Indian trainee, the biology student Himanshu (left) conducted a comparative biodiversity study under the supervision of GV's collaborator Dott. Salvatore Vinciguerra (above left) – and presents it to all the volunteers (below).

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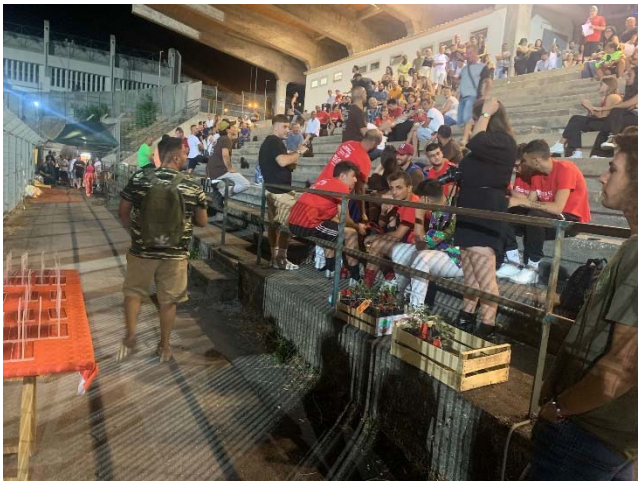
EUKI-Project "Humus per la Biosfera" Q2-3 2022 – Youth work for climate awareness



Giacche Verdi and its volunteers organize and participate on events with children and teenagers to promote climate protection and sensitize for the value of nature and soil.

Photos above: Our volunteers hand over their self-grown oak seedlings to the winners of Bronte's softball tournament.

Left and below: Educational feast at the didactic area "Bosco Brignolo" in Bronte, an ex-stone quarry and ex-rubbish dump, forested and designed with a bee-path by Giacche Verdi.

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EUKI-Project "Humus per la Biosfera" Q 3 2022 – Experiments on humus growth

Our trainees want to know whether our self-made "Terra Preta" effects the growth of plants

The German ecology student Linda Schnabel (above, left) and the Chinese biology student Ying Huang (left) measure the effect of fertility and water holding capacity of Terra Preta on salad and tomatoes. They mixed the soil before with self-made bio-char, manure and garden earth. Their results are on www.terrebiosfera.org. Photo above, right: The helping German volunteer Magdalena Markgraf. In the meantime, another team led by the University of Catania, continues the field survey of soil respiration and humus content. Photo: Alfina Avellina from Sicily and Arda Basaran from Turkey

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EUKI-Project “Humus per la Biosfera” Q4 2022 – New project participants

Practical work right at the beginning is a perfect teambuilding and environmental adaption tool for our 7 newcomer students and volunteers from Germany, Turkey and France.

The German EVS volunteers Loretta Miehle (left) and Lina Saleh (right) have much fun by their new sowing experience, taught by GV-president Gino Montagno. The oat-barley-sweetvetch mixture will be an important ground cover in order to enrich the soil and to increase the humus content in the soil.

Lunch break at the olive harvest with Sören Krawczyk, Laura Serra, Felix Aufderheide, Paula Serre Sornos and Eylül Uslu. Right: Milo Landsberg and workman Riccardo Samperi at fire prevention work.

The HUMUS project introductions include both theoretical basics (left and right picture with Stefanie Hermsen from the MHS) and visual experiences, such as the visit to the compost-producing earthworm farm Biotica.

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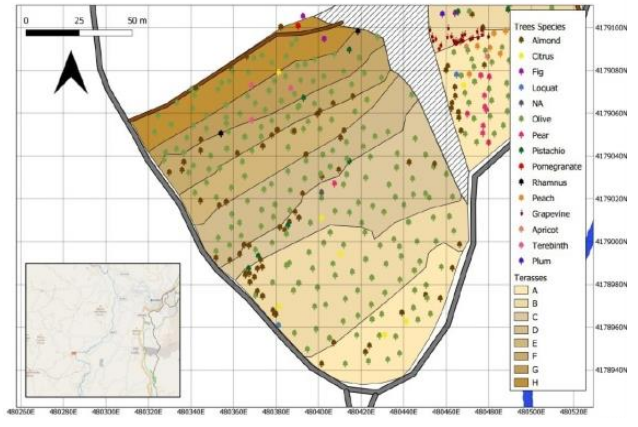
EUKI-Project “Humus per la Biosfera” Q4 2022 – Field analyses and mapping

In October, we planned the winter activities like erosion prevention measures of terraces.



Our experimental plots for regenerative agriculture with each single tree and its condition got GPS tracked and mapped by the students Sören Krawzyk, Felix Aufderheide and Lina Saleh (photo at the right).

The soil-study analyses with the Uni Catania staff continued. Various experiments to measure soil density, moisture, respiration, etc. were carried out and recorded using different instruments.
Photo above: A new soil drill is forged! Biology docent Andrea Zimone, Prof. Paolo Guarnaccia and blacksmith Alfredo Favazza.
Right: Students Antoine Vallée (FR), Felix Aufderheide (D) and Luca Proto (IT) measure the water absorption capacity of the soil.

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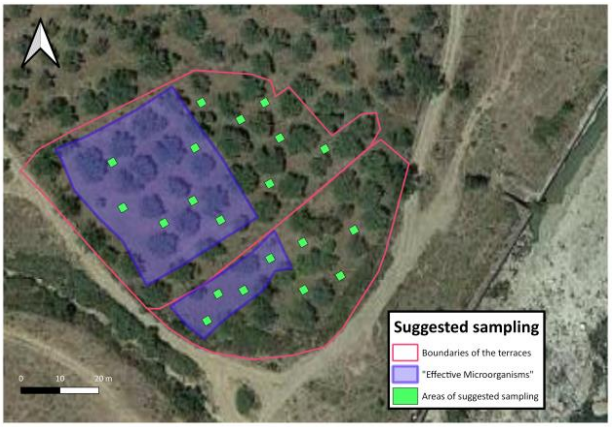
EUKI-Project “Humus per la Biosfera” Q4 2022 – Effective Microorganisms

Effective Microorganisms (EM) are used in agriculture and households and for nutrition to shift the milieu of bacteria, microalgae and fungi in favour of the beneficial organisms. They shall contribute to a quick organic transformation in humus. We want to gain knowledge and contribute to the science with new insights.

Our French trainee Antoine Vallée (on the left together with Theresa Jäger from Germany) grow EM and conducted a four-week experiment, comparing the influence of EM and sauerkraut on compost worms. The result showed no significant effect in this particular experiment, only a slightly higher multiplication in the EM-treated culture than in the sauerkraut and the 0-sample.

We fulfilled a second experiment with the self-produced EM solution, using it on the GV fields to later investigate its influence on crop yield and root systems. The solution was only applied to a certain area, the treated and untreated plants will therefore be compared next year.



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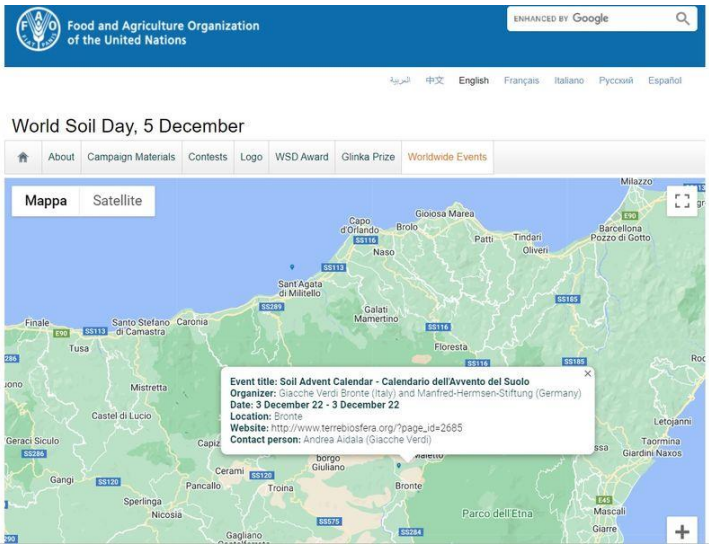
EUKI-Project “Humus per la Biosfera” Q4 2022 – Environmental education

After the summer holidays, indoor lessons in the schools around Mt. Etna started once again.

The importance of humus and environmental protection was explained to the children with the help of our PowerPoint presentation by GV staff Lidia Marullo (right photo), Andrea Aidala (photo below). In addition, each volunteer presents a short personal story on the topic.

Left: Volunteer Theresa presents her story first in the GV office before talking in front of a class.



A side activity was the Soil advent calendar, which was created dedicated to the **World Soil Day 2022**. From December 1 to 24, the volunteers made a daily soil-related post on the GV social media channels. It went from facts to advices and riddles. The project was 1 of only 4 in Sicily.

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EUKI-Project “Humus per la Biosfera” Q4 2022 – Creation of public green areas

Adrano: Students and our volunteers prepared the school yard for an upcoming feast.

22.11.2022: At the *Festa degli alberi,* the first green area was created. The GV staff Andrea Aidala and Dott. Salvatore Vinciguerra together with the volunteers took part at it in the *Istituto Comprensivo Giuseppe Guzzardi* school. A short film about reforestation was shown and then several trees, plants and flowers were planted, all together, with some humus soil in the school garden.

The next round of tree planting has begun and hundreds of oak seeds have already been planted in the volunteer garden, which when they grow and are ready will be made available for citizens to make cities greener and raise awareness.

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EUKI-Project “Humus per la Biosfera” Q4 2022- Compost in town

"Municipal composting: advantages and perspectives" is the first of our three compost webinars which address administrations, citizens and organizations within the planned Biosphere Reserve around the Etna.

In the first webinar, the focus was on explaining the realization of the so-called systems in terms of expenses and bureaucracy.

The webinar was broadcast live on the social media platform Facebook and had over 240 viewers. It was moderated by Dr. Danilo Pulvirenti, the Mayor of the municipality of Ferla Dr. Michelangelo Giansiracusa and Manuela Leone, regional leader of Zero Waste Sicilia and representative of Zero Waste Italy.
Ferla was the first place in southern Italy to construct compost houses by the concept of Dr. Danilo Pulvirenti with the help of volunteers of the community. In that sites the organic waste of families from the municipality is changed into qualitative compost. Ferla is the prove that the concept of community compost sites is working.

EUKI-Project “Humus per la Biosfera” Q4 2022 - Bokashi

In addition to the existing compost in the volunteers' garden, they experiment with “bokashi”

Bokashi is called the anaerobe process of organic material. Kitchen scraps are added to the bin and after some weeks the end product is a pre-compost and bokashi juice or liquid fertilizer. Our homemade buckets were filled with organics, added by also self-produced microorganisms.

Within the created (and future) public green areas we inform citizens with an easy understandable panel about the advantage own humus production with a non-smelling bokashi fermentation even in small kitchen or balcony spaces.

A QR code leads to the project page terredellabiosfera.org, where more information and a precise explanation is available for those interested.

EUKI-Project “Humus per la Biosfera” Q1 2023 – Meeting with Sicily’s Minister of Environment

Our working group for an Etna surrounding Biosphere Reserve discusses the vision and opportunity

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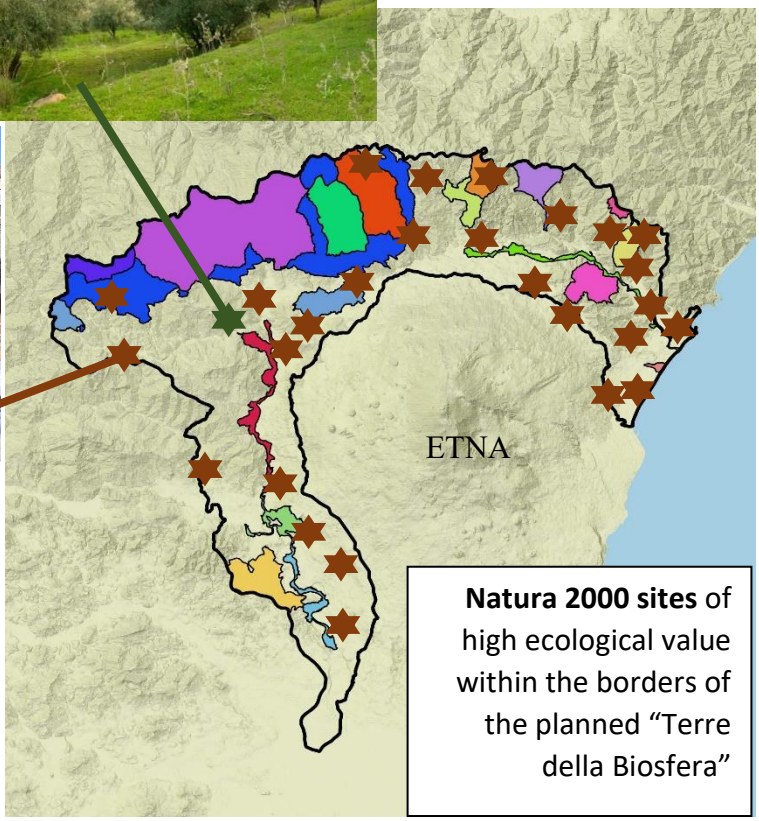

Humus activity sites within the project area Terre della Biosfera

- Project trial fields
- Project school and community activities

Natura 2000 sites of high ecological value within the borders of the planned “Terre della Biosfera”

Catania, 30.01.2023 We presented our vision and previous planning for a UNESCO biosphere reserve to the new minister and introduced her to our current project "Humus per la Biosfera" as an example of future activities in the field of climate protection, regenerative agriculture and environmental education.

The response was very positive; results will be seen later.

Left: On. Angela Foti, Stefanie Hermsen (MHS), the Minister On. Elena Pedana and the GV-Team Dott. Salvatore Vinciguerra, Gino Montagno, Andrea Aidala

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EUKI-Project "Humus per la Biosfera" Q4 2022-Q1 2023 – Creating an irrigation pond

At the highest point of our field we create a natural pond that serves as a rainwater catchment basin

An important project output is a large pond, which fortunately holds water very well without the need for a liner. It is the prerequisite for an environmentally friendly irrigation system of our new plantings and shows farmers an alternative to the usual summer water withdrawal from the river Simeto here.

GV president Gino Montagno (middle) and guests from Germany admire the immediate settlement of amphibians and plants

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EUKI-Project "Humus per la Biosfera" Q 1 2023 – Field work
The international volunteers and trainees love to test out their practical skills!



Volunteers Milo Landsberg and Theresa Jäger energetically work on the fencing of the trial area


Instructor Simone Marullo enables the young people to use a motor scythe for the annual fire prevention work in our environmental education area Bosco Brignolo (above)

Field supervisor Riccardo Samperi explains to the volunteers the use of a soil auger for the preparation of big planting holes for trees

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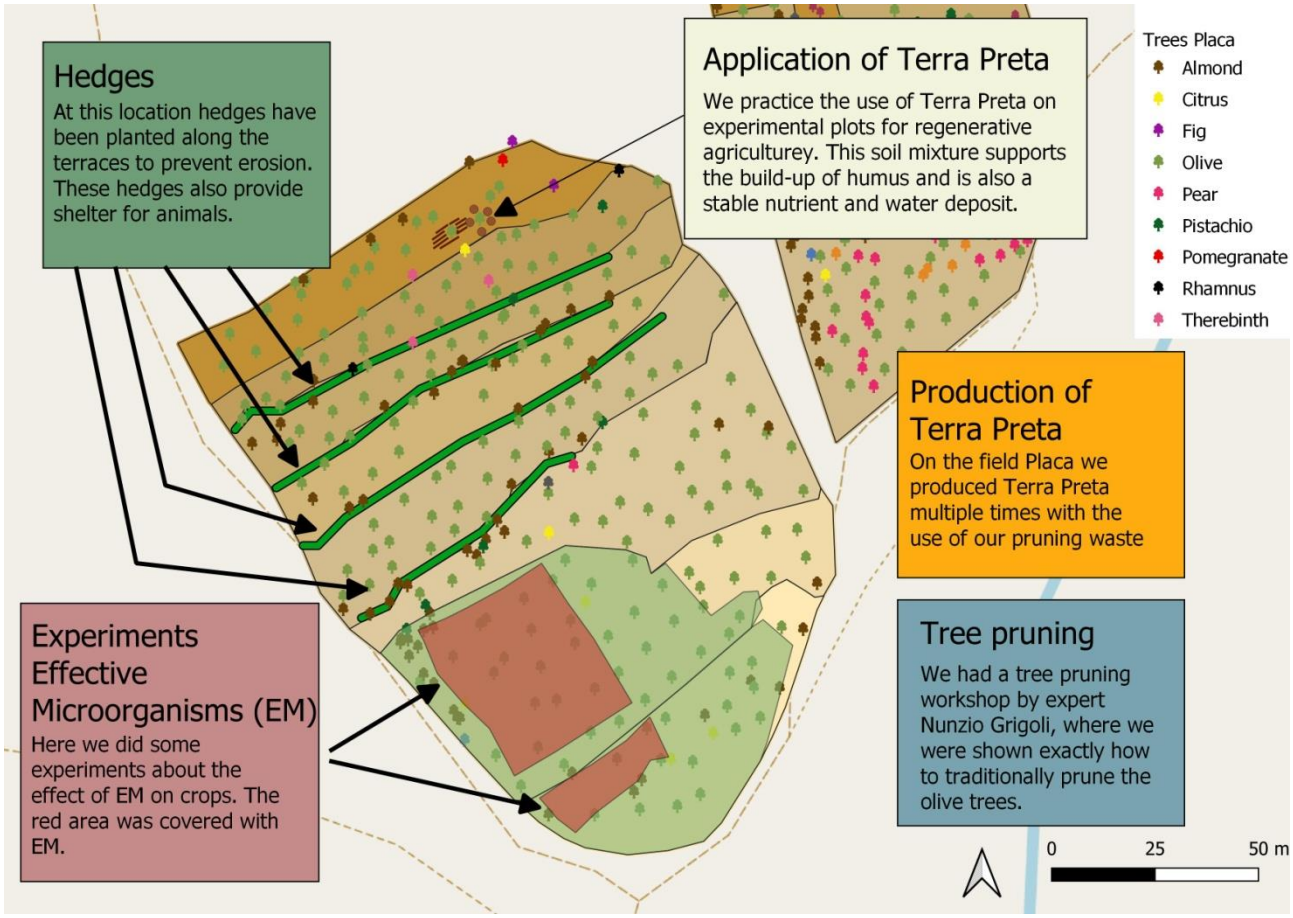
EUKI-Project “Humus per la Biosfera” Q 1 2023 – Mapping our experimental plots
Two courses in field fairs enabled the volunteers to document our farming experiments




Photos left: engineer Massimo Longhitano explains his instruments; Volunteers Aziz Uğur Koç, Marvin Launert, Sebastian Mittag and Theresa Jäger try out what they have learnt.
Above: Student Lina Saleh with the help of Felix Aufderheide take points for her documentary map below.



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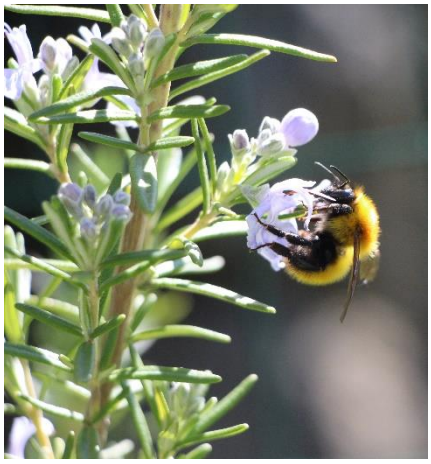
EUKI-Project "Humus per la Biosfera" Q 1-2 2023 – Hedge planting
800 metres hedges hinder erosion and support biodiversity

Stabilizing our olive grove soil, we planted native shrubs and trees along the terrace slopes. The plants also provide nectar and pollen for insects, fruit for birds, hiding places and nesting opportunities for various animals. They enrich the biodiversity of the soil with their root system and stimulate the growth of the surrounding plants with their mycelium.

Volunteer Marvin Launert and field staff Simone Marullo are preparing the planting



Aromatic plants and shrubs are Cistus salviifolius, Salvia Rosmarinus (photo left), Teucrium frutican, Lavandula angustifolia, Origanum vulgare.

We also plant some trees like Phillyrea angustifolia, Pistacia lentiscus, Arbutus unedo (photo right), Myrtus communis and Laurus nobilis.

Left: Simone Marullo with volunteer Theresa Jäger and trainee Merle Winterberg at planting work;
Right: Laurel and this year's legume undersowing Chickpea with a water-saving drip irrigation tube – the water gets from the new pond to the plants by gravity.

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EUKI-Project “Humus per la Biosfera” Q 1 2023 – Carbon Capture through Charring Workshop

One of our project goals, to (approximately) permanently store carbon bound in tree prunings, is pursued by carbonising and later incorporating it into the soil.

Our first attempts at a practical charring method for farmers failed because our self-made charcoal pile made of scrap metal released toxic heavy metals into the charcoal at high temperatures.
On the recommendation of the German Ithaka Institute and under the guidance of their scientific assistant, Jannis Grafmüller, we tested a simpler and pollutant-free method: charring in a conical digged pit, a "Soil-Kontiki".

24.03.2023: We invited to a workshop on Giacche Verdi's land, in which 47 farmers from the surrounding area and some African refugees working in agriculture took part.
The participants helped to model the previously excavated hollow in the ground and fed the fire with tree cuttings. After about 2 hours we stopped the carbonisation process with water. The result was around 100 kg of biochar. We sent part of it to the Ithaka Institute for their large-scale comparative testing of the effectiveness of carbon sequestration by plant charcoal of different provenances.
Our material now got pulverised and mixed with fresh donkey manure before it goes into a 3-month maturing phase. Then the “Terra Preta” (= black earth) is ready to be worked into the soil or applied to it and to unfold its positive agricultural effects and carbon sequestration over the next 1-2,000 years.

The whole process and how to create biochar is further explained in our YouTube Video.
This video is supposed to spread the practise of biochar production. Thus, the content of the workshop reaches a wider range throughout Italy.

Engineer Jannis Grafmüller (front) from the Ithaka Institut lead the workshop

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EUKI-Project "Humus per la Biosfera" Q 2 2023 – Good practice in regenerative agriculture
28.04.2023 Workshop on sustainable olive tree cutting

Regular pruning of fruit trees is important to maintain their yielding capacity.

Left: Pruning expert Dott. Nunzio Grigoli explained the rediscovered ancient method of vase-shaped tree cutting method to the participating farmers (22)

One pruned tree example

After removing all dead branches, the topiary is carried out, resulting in a relatively light crown that is open at the top for maximum light penetration.
The cuttings are again recommended to be transformed into bio char.

The pruning procedure is explained in detail in [a video on YouTube](#).

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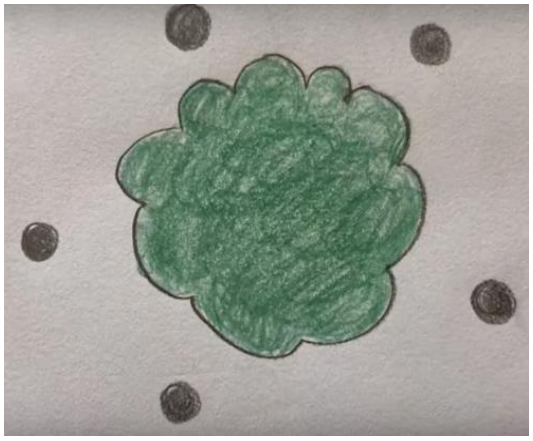
EUKI-Project "Humus per la Biosfera" Q 1-2 2023 – Carbon sequestration

With the charred tree cuttings and horse manure we produced so-called Terra Preta – black earth

Terra Preta is a soil mixture discovered in the Amazon in ancient Indian settlements that makes soils more fertile by introducing nutrients in a bound form and making them available to plants for an extremely long time. The water-holding capacity of the soil gets also increased. Another important point is the charcoal's capacity of carbon storage; because the coal nearly does not rot underground, this method serves as a CO2 sink.

Biochar-compost mixture 1:3



Above: We are trying out two different methods of inserting TP into the soil: The simple surface fertilisation and the slightly more elaborate spot burial around the tree in question.

Like last summer, our recent volunteers experiment with different soil mixtures in order to understand whether short-term changes in plant growth can be detected with and without Terra Preta.

See our [Video Terra Preta]

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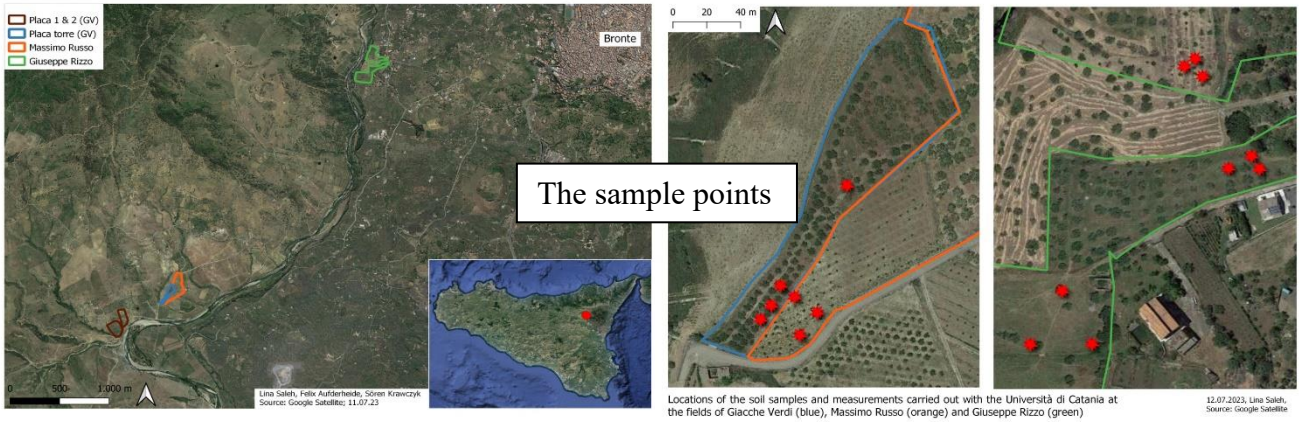
EUKI-Project “Humus per la Biosfera” Q 1-2 2023 – Scientific researches concluded

The scientific field surveys as well as a vegetation based study of our trainee Felix Aufderheide continued until summer. Now they have finished their data recording in the field and have to elaborate them.

Two professors, one biologst and three students from the Agriculture University of Catania were involved in the field activities and taught them to our volunteers. A total of 7 soil samples were taken at 4 representative farms in the area (2 non-certified conventional, 1 conventional, 1 certified organic). The main measurements concerned permeability, respiration and soil organic activity.



The German trainee Felix Aufderheide studied during his internship the vegetation on the University’s sampling points and still is about to determine the soil quality according to the Ellenberg method. He explained his researches during our **Agriculture webinar on 15.03.2023 with 111 views.**

Aiming to promote the humus building regenerative agriculture, the agrarian expert Prof. Paolo Guarnaccia, who conducts our field studies Giuseppe Rizzo from the agrarian department of Sicily and active organic farmer and our trainee Felix held lectures, moderated by Andrea Aidala.

EUKI-Project “Humus per la Biosfera” Q2 2023 – Organic waste handle

On 30.03.2023 the second webinar on communal composting took place. This time, the host Dott. Danilo Pulverenti focussed on the practical realization of the compost sites and received professional help by the ecological architect Marco Terranova.

The webinar-series is dedicated to the municipalities within our planned Biosphere Reserve Terre della Biosfera.

Already the first webinar in November attracted 287 viewers; this time it was watched by 290.

When realized, communal compost sites will significantly help to reduce greenhouse gas.

Meanwhile, our school composters were so popular that we had to set them up in more schools and build 23 boxes instead of the planned 8. The extra work allowed the newly arrived volunteers to try out their manual skills. In the schools, they were a very popular training object for the children, which will certainly be put to good use.

Photos above: Volunteers Theresa Jäger, Merle Winterberg and Marvin Launert at construction work with GV staff Simone Marullo. Lidia Marullo explaines the use at school.

Left: In those schools, which had created a vegetable bed while participating in our previous EUKI project Frutti per la Biosfera, we helped the children to clean them, using the weed for the first composter filling.

EUKI-Project "Humus per la Biosfera" Q1-2 2023 – Environmental education till summer holidays

Till today, our theoretical indoor and practical outdoor lessons reached a total of 3.322 children!



GV staff Paula Ferre Fornos and the volunteers Daria Wienen, Theresa Jäger and Lina Saleh at didactic work


Left: GV instructor Andrea Aidala and our Turkish volunteer Eylül Uslu during some extra lessons for kindergarten children. Eylül has worked enthusiastically with the children and took the decision during her stay to become a school teacher after returning to Turkey.

Left below: Further school class excursions to our didactic area Bosco Brignolo took place with a total of 200 children. Photo at webinar invitation: Milo Landsberg is one of our volunteers, who improve their educational skills during the excursions.


The webinar on 06.07.2023 was dedicated to the experiential method of outdoor environmental education for children and interested 90 participants. Speakers were the three main environmental education staff members of Giacche Verdi, Andrea Aidala, Dott. Antonio Fresta and Lidia Marullo, as well as the director of Bronte's forest kindergarten Silvia Grigoli and her colleague Lorenza Saitta.