





# **Nature communication**

# Restoring friendship with nature Children as future protectors of biodiversity A project with UNESCO

## **INITIAL SITUATION**

Today's children are drowning in virtual worlds and losing contact with the natural world, with reality. Autism and various forms of perceptual disorders are on the rise in industrialised nations, contact with nature has been broken. The virtual world of smartphones and tablets is a digital world that limits its impact mainly to the sense of sight and to a lesser extent to the sense of hearing. This limitation of reality is called "digital dementia" [1, 2] by some neuroscientists.

Nature today is in great need of protection, but **you can only protect what is familiar** [3]. **And you only know what you can experience, the more senses involved, the better.** By isolating themselves from the natural world, children lose touch with it and no longer know what is worth protecting.

**Biodiversity can only be promoted and protected if young people have a personal connection to nature - they are the future of our society and of a restored earth.** In addition to protecting humanity's world heritage, UNESCO has also set itself the task of reconciling with life, with nature. It wants humans to make peace with nature. <u>www.unesco.org/en</u>

At the **UN Biodiversity Conference in Montreal in December 2022, a groundbreaking agreement has just been reached that** provides for cross-disciplinary measures to conserve biodiversity and ushers in the **vision of a life in harmony with nature.** The present project sees itself as part of this endeavour, and starts with the generation that will create our future.

## WHAT DOES "FRIENDSHIP WITH NATURE" WANT TO ACHIEVE?

Our project aims to help **communicate and strengthen the** friendship between **children and the plant world**. To do this, we integrate the knowledge of different cultures that look back on a long history of cooperation with nature and we combine it with current scientific research in the field of plant intelligence. The central connecting point is the "music of plants", with which the otherwise silent living world of plants can be made audible.

With children and parents from all over the world, we want to share this knowledge through

- + an experience and training package,
- + school and art projects,
- + music,
- + stories and
- + the introduction of tactile, adventure-oriented and popular science activities.

In our project, the analogue world of nature is brought back into the focus of children's perception, a world that is three-dimensional and connected to all the senses of our body [4, 5].

We want to put together a package in which we teach children about nature in and out of school, with the possibilities of technology, but not obsessively tied to technology. We want to pick up children and parents where they are at the moment and introduce them to nature as a personality in a friendly way.



# PLANNED ACTIONS

1. Companion book about the music of plants to support school projects for children, teachers and parents.



## Book suggestion: Making friends with plants

This book gives advice on how to get in touch with nature with all our senses.

- \* Plants can hear [6], they even seem to have a kind of memory [7, 8], .
- \* A climbing plant adapts its leaf shape to the leaves of the base plant[9], even if this is a plastic plant [10].
- \* Plants produce substances that are not only fragrant but also have healing properties [11-13],
- \* Plants absorb carbon dioxide (CO<sub>2</sub>) from humans and produce oxygen and food for animals and humans with the help of sunlight. When we go into the forest, we in turn fertilise the trees of the forest with our breath [3]. At the same time, we get back vital oxygen. A win-win situation.
- \* Trees communicate with each other via underground fungal networks [14, 15]. Through this "Wood Wide Web" they exchange nutrients with other trees and provide weak trees with nutrition to maintain the forest as a whole. A wonderful **example of give and take, of symbiotic relationships that** can serve as a role model for children.
- \* Proximity to natural habitats and plants even equalises social differences in life expectancy: Near nature, people with low incomes live significantly longer[16].
- \* The book contains practical lessons suitable for the classroom, after-school programmes or organisations working with groups of children. Lessons that can be integrated into different areas: art, storytelling, movement, experiential biology, outdoor and science. The science part includes knowledge about the plant world and also practical technical experiments.
- \* Activities in the book include presentations involving parents and peers to create awareness of the issue in a community context.
- \* The multidisciplinary nature of the project allows for the participation of all children. They can participate and contribute in their own authentic way. Working together as a group is key to the project, which leads to valuing the talents of others and the great value of diversity is recognised.

Nature is the living example that cooperation in diversity is the key to success and survival.

The book also describes a training of the senses that changes the perception of the world. Through the senses and engagement with nature, meaning can also emerge, the "meaning of life" that a "no future" generation so desperately needs!

The book is based, among other things, on the projects that authors have carried out with musicians, actors and speakers, but also technicians and doctors. It also reproduces in comprehensible language the very latest scientific findings that form the basis for sensory training, but also for the music of plants.

## 2. Interactive plant technology: puppets that move to music

We want to add movement to music. The project will develop prototypes for small wooden puppets that translate the plants' signals into movement: For example, the mouth of the puppet moves to the rhythm of the music. Like a conductor, the hands move up and down when the plant plays music. The device is to be connected to the music of the plants via MIDI. Gestures, e.g. from sacred dance, would be possible.

#### Eurythmy and the language of movement:

The puppets can also perform simple gestures and express movement languages such as eurythmy.

For children, this is another opportunity to experience plant music. The trees not only make music, they also move to it, in the form of the little wooden puppets we provide.

This makes the children understand that trees are personalities, that nature has personality. An important insight for dealing with it!



Wooden puppets from many cultures serve as models for our plants-musicians. They will make gestures to plant music.

# 3. A plant xylophone

In addition to the puppet, we also want to develop small musical instruments that do not produce sounds electronically but sensually as vibrations of metal or wooden elements. For example, a xylophone is to be controlled via MIDI. A small children's piano with a range of one octave is another planned means of analogue visualisation of plant music. It, too, is to be controllable via MIDI and will make the music of the plants visually perceptible within the framework of an octave.



The project aims to develop a miniaturised form of this large MIDI xylophone for children. The xylophone's tonewood can be carved from local tree species. Children also learn about trees whose woods sound particularly good.

## 4. Cyclical patterns of tree music.

Florence Friedrich Chladny was the first to make the vibrations of metal plates optically visible through fine sand. Loudspeakers with flat membranes offer the possibility to visualise this not only for single tones but also for complex music. In the project, a small kymatic plate is being developed on which children can visualise the sounds of plant music. This analogue kymatic tool is controlled via the headphone output of the plant music device. It is sprinkled with fine sand or Lycopodium powder or filled with water so that the sounds and their changes can be directly visually experienced by the children.



Kymatic figure of a sound as a plant can produce it on the surface of water, the key element of life.

The tools planned are not digital apps on the smartphone or tablet, but real analogue tools. The children are not drawn back into these addictive digital devices. They are a deliberate analogue realisation of phenomena, based on pedagogical insights into the richness of analogue perception.

**5. Lessons: Children become inventors of plant technology** Plant communication technology aims to enable a different and more intense kind of relationship between humans and plants, but also to inspire children to develop their own forms of contact with nature. Children can become inventors of their own plant technology. In workshops, children learn how to work with nature and develop different kinds of plant technology. The children invent ways for plants and people to communicate and work together. The children learn to get involved in the logic of plants, learn to listen to how the plants react, how they manifest themselves.



Children learn to make contact with the world of plants.

The children start from their own creativity and needs to connect with nature and the needs they feel for today's society. With the technological tools they learn in this workshop together with the technologies developed by the scientists involved in the project, to create ways to take plant music and plant technology to a new level.

## 6. How schools should be involved

At least 99 schools worldwide are to be inspired to participate in the project. For this purpose, a training course "Friendship with Nature" is being developed in seminar centres. Locations are initially planned in Switzerland, Austria, Germany and Italy. Teachers from the partner schools come to these centres and learn to make contact with the plants through music. They then report back to each other on their experiences, which are collected for future projects. Ideally, the teachers have prior knowledge in the subjects "music", "crafts" and/or "natural sciences".

## Integrated school project

A school project over 6 weeks could integrate lessons of the respective subjects, for example, like this:

**Biology:** The talents of plants: remedies, eco-artists, food providers, CO2 reservoirs. Cooperation in the forest, senses of plants, experiments for class presentations.

**Physics:** Electrical resistance in plants, measurement of resistance, rhythms of resistance (measurable with music of the plants device), experiments for class presentations.

**Music:** basic elements of plant music, keys that can be used, history of keys, tuning of keys, tempo of music, chords,...

**Handicrafts:** building plant puppets; carving sounding woods for xylophone, mechanics for control, etc., experiments for class presentations.

## PARTNER SCHOOLS THAT ALREADY WANT TO PARTICIPATE

Austria Private Secondary School Goldenstein, AUSTRIA Waltraud Wührer Goldensteinstraße 2 AT-5061 Elsbethen https://www.ms-goldenstein.salzburg.at/ Italy LIBER School c/o Christine Schneider Via Pramarzo 13, 10080 Baldissero C.se

#### Switzerland

Mountain School Avrona, SWITZERLAND (enquiry ongoing) Angela Büche CH-7553 Tarasp <u>https://www.bergschule-avrona.ch/</u>

#### Uganda

Golden Treasure School Uganda, AFRICA c/o Ellen Genelin Sternhofweg 23 AT-5020 Salzburg

## Other activities to get to know nature better

The project is to be accompanied by a broad programme to get to know nature in the open air: Sensory training of all senses through listening, observing, touching, smelling, tasting etc.

## Sensible use of technical aids:

**Recognising plants**: Apps like "Picture This" "Picture Mushroom" etc. should be used to learn about plants botanically: their edibility, their healing properties, their botany.



Bird calls: Apps like Cornell Lab's Merlin Bird aim to recognise bird calls

## Sustainable energy use for all projects

All these projects are powered by solar energy, as are the music systems and accompanying equipment.

# **EXAMPLES OF SUCCESSFUL PROJECTS**

In this document we demonstrate some practical examples that we have recently realised and whose methods we want to integrate into the project "Friendship with Nature" for UNESCO.

## **The Silver Fir Sonata**

In the Austrian mountains, a vehicle moves slowly up a forest road. Inside it is a concert grand piano weighing 470 kilos. Only with difficulty does it reach its destination: an alpine meadow at 1600 m above sea level.



A 200-year-old silver fir grows in this meadow. Ruffled by the wind, struck by lightning, it is nevertheless vital and viable and stretches its green needles into the sky. The fir is the target of the piano transport. Soon she will be connected to a small device, the "Music of the Plants", which will help her express herself on the piano. She will move the keys and make music. Professional musicians will accompany her and improvise to her sounds. This is a scientific-artistic project in which the fir tree is given a voice made intelligible through technology and science. Changes in electrical resistance in the conductive vessels of the plant will be translated into music and sent to the piano via MIDI.

Children see that a tree can make music and accompany the piano playing of the silver fir.

Watch the trailer of a planned film deriving from this project: youtube.com/watch?v=U3nkFqqDdvQ



A fir tree makes music on a concert grand piano and children improvise to it on traditional music instruments in the Carinthian Lesach Valley

# **The Earth Phone**

In a park in Paris, passers-by are invited to have a conversation with the Earth. This art installation "Earth Telephone" was inspired by the "Wheelbarrow Walk", a walk to UNESCO headquarters to establish a different relationship with the Earth.



Parents and children make contact with the Earth Telephone, 2022 at the UNESCO meeting in Paris

What does the earth speak?

What would you like to ask the earth?

The Earth Phone teaches the **basic rules of cooperation with nature**:

**Give and take:** First you give something to the earth. Instead of the quarter dollar in an old pay phone, the earth phone asks for your song, your voice, your poem, your expression of gratitude.

The keys with which you select the earth are your own senses. You are invited to activate your eyes, to look at all aspects of a plant, its colours, its details. You need your nose to breathe in the healing substances of nature for your body. You can smell, feel and listen. When you are ready to listen, you take the receiver off and listen. Then you hear the melody of the earth through the antenna of the earth, the tree that makes music with the help of the plant music.

https://www.voiceandplantmusichealing.com/earth-telephone

This art installation at the UNESCO conference in Paris moved people to tears. It has proven to be a simple way to make people pause and engage with the Earth by conveying deep feelings of belonging and love for and of the Earth. www.youtube.com/watch?v=XjBsIDJVoSc

# THE HUMAN BEING AS PART OF NATURE - FROM PERSON TO PERSON

For most people walking through a forest nowadays, plants are just decoration. They are unknown strangers that do not move and that cannot speak.

What if we gave plants a voice? What if we knew many plants personally like good friends? If they became our friends, our relatives, real persons, as they have been for many indigenous peoples of the earth for millennia and in some cases still are today?

Let's give plants a voice! Let's make them music, let's give them the opportunity to express themselves!

For the new generation of children who have had experience with the music of plants, nature is not the world around us that we have to save because otherwise the earth will not survive. For this new generation, we are **part of this nature, nature is our family, our mother,** we feel all of nature within us, we know our place in the whole. We know what our place is in this collective being and we know that it is our responsibility to be considerate of nature, to include nature in our decisions, to treat it as an equal partner.

This new generation of people is growing up with the understanding that we are all part of this game and we cannot leave anyone behind, not the plants, but also not other cultures, other people, animals, waters, air, of course everything that lives.

Through the planned project, nature can gain personality because it is given a voice, the voice of music!

## **WHO WE ARE**

A group of educators, artists, nature specialists medical doctors and scientists have joined together in this project to plant the seeds for new generations to grow up knowing that humans can be one with nature.

#### OUR PROJECT TEAM (as of 1.1.2023)

Franz Inzko, Georg Lexer, Dietmar Messerschmidt, Christian Michael, Pesce Spada, Peter Winkels, Benedicte Riis, Corinne Druelle, Paulien de Gaaij, Nikki Kurt, Tritone Crisantemo, Zigola Pioppo (Karin Wartenbergh), Maximilian Moser (Human Research Institute, Weiz, Austria)

The team members of the project have years of experience in working with plant music and plant communication from the knowledge of primitive peoples, scientific research related to contact with nature and artistic activities in the field of communication with nature.





## Zigola Pioppo (Karin Wartenbergh)

MSc, technician, singer, musician, Stud. Art and Music at the MIX Academy in Amsterdam and at the Amsterdam Conservatory, until 2008 assistant professor in scientific research methods and perception research, research on the interaction between humans and technology in the field of sustainable energy sources. Created and performed three different music theatre shows for children, the last show about plant intelligence. 2011 nominated for the International Cinekid New Media Award for innovative interactive technological character. Born in the Netherlands, lives in Italy

#### Maximilian Moser,

Prof. for Physiology at the Med Uni Graz. Practical course for hearing and balance and other sensory practical courses. Founded a seed organisation in 1985 for the preservation of cultivated plants, today "Noah's Ark", the largest in Europe, with 11,000 memb. (www.arche-noah.at). At the Free Music Centre in Munich: Construction of cymatic objects and seminars the physiology of the human senses. 10 years of research in space medicine. 7 books on the effects of nature and forests, e.g. 2022: Waldeskind. Born in Austria. Contact:

max.moser@medunigraz.at





#### **Benedite Riis**

Writer, musician and teacher. Teacher training in physics and music. Performed shows for children in over 20 countries. In 12 countries, Benedicte founded educational houses to teach children both science and art (Tante Andante Houses). Author of 36 books and music albums. Founder of "Teaching with Christian Andersen": Educational Hans programmes and performances of the writer. From 2021: integration of the music of plants. Cooperation with schools of different cultures to build a deeper relationship with the plant world.

Born in Denmark, info: www.benedicteriis.dk

#### **Georg Lexer**

MD, specialist in surgery and thoracic surgery. Manager in a hospital in Austria, developed future organisational structures. Initiated the changeover to healthy cuisine in his clinic, preferably regional and organic. A herb garden was also planted. According to the motto "Let food be your medicine...". Coauthor of the book "Hospital of the Future": Medicine, how it should be: with the focus on prevention and health-promoting livestyle, based on anti-inflammatory nutrition, movements and health-promoting lifestyle . He is currently working on the topics of plant music, natural sound, MD Wood, MD Water, MD Meadow and MD Alm.



#### **Christian MICHAEL**

certified ChronoBiograf®, resilience trainer and vocal coach in Salzburg, Austria. Salzburg Summer Festival: Choir and soloist (Bach Choir Salzburg and Concert Association of the Vienna State Opera Choir). For 20 years working with body, voice and breathing (Breathing School bv Ilse Middendorf and School of Voice Envelopment Walborg by Werbek-Svärdström). In 2020, he met Maximilian Moser, who inspired him for the time organism of humans and their biological rhythms and trained him in ChronoCardioGraphy. He is currently working on the music of plants and the influence of the "sound of nature" on human well-being.



#### Paulien de Gaaij

nature-inspired photographer and sound and lighting technician, working always from a storyline. 35 years of experience in the field of story visualisation. Social Academy in Zwolle, Photo Academy in Amsterdam. Work on music of the plants, where her images show the magical world of interaction with nature. Ability and sensitivity to make magic visible. Paulien's images tell stories that unfold and contribute to the artistic character of the project. Born in Netherlands



# Nikki Kurt

#### Graphic Storyteller, Illustrations

are created through deep listening to words and feelings. Simple visuals and typography distil complex thoughts, ideas and relationships to their true essence in the moment. 14 professional years in design and innovation meditation and self-realisation techniques. Focuses on conversation, spirituality, nature, travel and people, but most of all relationships. Nikki has drawn and spoken to thousands of groups and trained hundreds of people around the world in her method of mindful noting. Nikki can often be found drawing next to her "Music of the Plants" device and enjoying nature and being outdoors.

## **Corinne Druelle**

lives in Canada, works as an educator in the field of communication with plants. Workshops for children and adults where she creates a deep relationship with plants. She has a background as a journalist and interviewer for Radio Canada in her home province of Quebec. Over the years she discovered the healing power of nature, which awakened a passion in her that she puts into practice in her current work. Corinne has years of experience in classroom activities with the music of plants.



## **Triton Crisantemo**

Studio engineer and forest worker, founder of an artistic community (Masterplants) that develops plant music technology to remind humanity of its oneness with nature. With his "Masterplants Orchestra" he will perform symphonic plant music concerts. Cooperation with indigenous musicians in cross-species concerts (humans and plants). Performances in schools, institutes, music centres and at festivals, e.g. in India, Tanzania, Sweden, Europe and the USA. Born in Denmark, Tritone currently lives in in Zanzibar, Tanzania, where he works as a trainer for young adult media production with local NGOs.

Links: www.masterplants.net



# Peter Winkels, PhD

Studied physics and philosophy at Ruhruni Bochum, University of Oldenburg with Prof. Rudolf zur Lippe (philosophy) Prof. Schellnhuber (non-clinical physics) Prof. Lutter (rain. energy)

- Quantum theory; interpretation of quantum mechanics
- Institute for Gravitational Research-/Waldaschaff: Management for 2 years
- Foundation of IFIS / Freiburg: Institute for Integral Studies
- Zen meditation: longstanding
- Damanhur: Plant Music Technology with Dr. Lutz Müller; with HRI Weiz: Heart Rate Variability, Plant Music and Nature Experience.

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