Forest Voices Japan
Marcus Maeder, 2024

Dear collective members,
親愛なるメンバーの皆様へ

I have listened to our conversations again, which Veronica has edited together last year, and noted down a few questions that I would like to discuss further with you in October. This time the product won't be a live performance, but a sound installation entitled “Forest Voices”, which will be presented at the Yoshino Art Festival in a side room of the large temple from October 12th. See the text about the installation, which I have included below. The idea is that our voices become the voices of the forest and are played in the installation together with the sounds we record in the forest. We will record our conversations in turn and I will use excerpts of them in the sound installation.

昨年、ヴェロニカが編集してくれた私たちの会話を改めて聞き直し、10月に皆さんとさらに議論したいいくつかの質問を書き留めました。今回は、ライブパフォーマンスではなく、「森の声」と題したサウンドインスタレーションを
制作し、10月12日からYOSHINO 20 ART FESTIVALのお寺の一室で展示する予定です。インスタレーションに関するテキストを以下に添付しました。このインスタレーションでは、私たちの声が森の声となり、森で録音した音と共に再生されます。私たちの会話を録音し、その一部をサウンドインスタレーションで使用する予定です。

The plan is for me to arrive in Shimoichi on September 28 and collect the data from the measuring stations and prepare it for our talks by October 4. Everyone is welcome to accompany me to the stations around September 29/30. We will have two blocks of talks, one on the afternoon of October 4 and one on October 5, for about two hours each. I hope that as many of you will have time for a meeting! I will be working on the installation from October 6 to 8 and setting it up in Yoshino from October 10 to 12. The opening will be on October 12.

私は9月28日に下市に到着し、測定ステーションからデータを収集し、10月4日までに私たちの議論のために準備する予定です。9月29日または30日に、ステーションまで同行していただくことも可能です。10月4日の午後と5日の午後の2回にわたり、各2時間の会議を行います。できるだけ多くの皆様が会議に参加できることを願っています！10月6日から8日にかけてインスタレーショ

ンに取り組み、10月10日から12日にかけて吉野で設置を行います。オープニングは10月12日です。

Now to the questions that I have noted down and that I would like to discuss further with you:

At the end of our talks last year, we discussed the difference between the environment and nature. Yoshi said that nature is visible and the environment is invisible. I have given this some thought. Of course, both words are just terms, they express an understanding of something, a reference to something. The term environment would therefore express a theoretical, scientific approach to nature, while the question is what nature actually is, apart from everything visible around us. Somehow, “nature” refers to everything environmental that is something other than ourselves. The question that concerns me here is how we can arrive at a concept of the environmental/natural in which we can see ourselves as part of something larger, i.e. create a concept and a reference that does not only describe things and organisms that are not us. In this context, I believe that the concept of nature describes a concrete experience rather than a theoretical concept and I would like to build on this.

さて、私が書き留めた質問についてですが、昨年の議論の最後に、環境と自然の違いについて話し合いました。ヨシは、自然は目に見えるものであり、環境は目に見えないものであると言いました。私はこのことについて考えてきました。もちろん、どちらの言葉も単なる用語であり、何かを理解し、それに言及するためのものです。「環境」という言葉は、自然に対する理論的・科学的なアプローチを表しているのかもしれませんが、では自然とは一体何なのでしょうか。私たちの周りに見えるすべてを除いて、自然とは何か。私がここで関心を持っているのは、私たちが何か大きなものの一部として自分たちを見ることができるような、つまり私たち自身以外のものや生物だけでなく、すべてのものと結びついていることを表す概念や参照をどのようにして作り出すかということです。この文脈で、自然という概念は理論的な概念よりもむしろ具体的な経験を表しているのだと私は考えています。

I have recently begun to speak more and more about the *environmental,* a new term that wants to express more than just a concept of the environment: the environmental is rather a practice in which we enter into an active exchange with the environment by recognizing - above all through acoustic experience - how much we ourselves are connected to everything, are in concrete or possible relationships. And the environmental as a practice does not only refer to “natural” objects such as trees or animals, but also includes technical instruments that help us to perceive more of the environment, to make the voices of other organisms understandable to us or to give them a voice that we can understand in the first place.

最近、私は「環境性」という言葉を使うようになってきました。この新しい言葉は、単なる「環境」という概念を超えたものを表現したいのです。環境性とは、特に音響体験を通じて、自分たちがどれほど他のすべてと結びついているか、具体的または潜在的な関係にあるかを認識することによって、環境との積極的な交流に入るという実践を意味します。そして、環境性という実践は、木々や動物のような「自然な」物体だけでなく、私たちがより多くの環境を認識し、他の生物の声を理解可能にする、または最初に私たちが理解できる声を与える技術的な道具も含まれます。

If the forest is a multiplicity of voices and sounds, what role do our voices play in it? How dominant are they, can they be or how can we reduce our omnipresence (primarily describable as human noise) in this fragile soundscape and blend in better? Such questions come to the foreground for me in our second encounter. How can we reduce our influence, fit in better?

森が多様な声と音の集合体であるとすれば、私たちの声はその中でどのような役割を果たすのでしょうか。それはどれほど支配的でありうるのか、またはどのようにして私たちの存在感（主に人間の騒音として説明できるもの）をこの繊細な音の風景の中で和らげ、より良く調和させること

ができるのでしょうか。これらの問いは、私が第二回の会合で特に重視しているものです。私たちはどのようにして自分たちの影響を減らし、より調和させることができるのでしょうか。

In science too, especially in acoustic ecology, thinking and action are changing from passive acoustic observation to active acoustic action, this is called ecosystem restoration, which is primarily about increasing biodiversity. A current example is underwater sound systems in the sea, which aim to attract coral larvae to resettle. Coral reefs are known to be biodiversity hotspots. For us, however, the term should be understood more broadly and in relation to the forest: How can we contribute to increasing biodiversity in our lives, professions and activities? How can we bring silence back to the forest? How can we find out who lives in the forest and how we can live together with these other actors?

科学においても、特に音響生態学では、受動的な音響観察から積極的な音響行動へと考え方と行動が変わりつつあります。これはエコシステムの回復と呼ばれ、主に生物多様性の増加を目指しています。最近の例として、海中での音響システムがあり、これはサンゴの幼生を再び定着させることを目的としています。サンゴ礁は生物多様性のホットスポットとして知られています。しかし、私たちにとってこの用語はより広く理解されるべきであり、森に関連するものです。私たちの生活、職業、活動においてどのように生物多様性を増やすことができるでしょうか。どのようにして森に静けさを取り戻すことができるのでしょうか。森に住むのは誰で、彼らと共にどのように生きていくことができるでしょうか。

How can a practice of sharing living space be developed in the practice of the environmental, a practice whose changes are also audible? What could a policy of sharing and, above all, of encountering the non-human look like? Are there approaches and examples here from your experience or from history, from past times? How could technology and science help here? Can the artificial be integrated into the natural and vice versa? If we say that we live together with non-human beings, that we regard them as equals (animals, plants, mountains, forests): What impact would that have on our lives? What would we leave, what would we do? The forest here would also be a metaphor for extending society to everything non-human. How can we fit into this ecosystem and what roles would we have within it? We do not want to apply human, social categories to the forest, but rather the other way around: what can we learn from the forest for ourselves and our role in the world? How do we integrate contradictions, such as the fact that we need resources in order to be able to live? What could a process of decolonization of the natural environment look like? Beyond the wilderness left to itself: What should a limited human claim to space look like? How much wilderness? How much diversity? Do we listen to the voices of others? How can we resolve the dichotomy between human culture and non-human life in an environmental practice and approach to life?

環境性の実践において、生活空間を共有する実践がどのように開発され、それによる変化が聞こえるようになるでしょうか。人間以外の存在との共有、特に出会いの政治はどのようなものになるでしょうか。皆様の経験や歴史、過去の時代からここにアプローチや例があるでしょうか。ここで技術や科学がどのように役立つでしょうか。人工物を自然の中に組み込み、逆に自然を人工物に統合することは可能でしょうか。私たちが非人間的存在と共に生きると言い、それらを対等に扱うとしたら（動物、植物、山、森）、それは私たちの生活にどのような影響を与えるでしょうか。私たちは何を残し、何を行うのでしょうか。ここでの森は、非人間的な存在すべてに対する社会の拡張のメタファーともなります。私たちはどのようにしてこのエコシステムに溶け込み、その中でどのような役割を果たすべきでしょうか。私たちは人間の社会的なカテゴリーを森に適用するのではなく、むしろその逆であるべきです。私たち自身や世界における役割について森から何を学べるでしょうか。生きるために資源が必要だという事実のような矛盾をどのように統合できるでしょうか。自然環境の脱植民地化のプロセスはどのように進むべきでしょうか。野生の自然を放置するだけではなく、どのような限られた人間の空間要求が望ましいでしょうか。どれだけの野生が必要でしょうか。どれだけの多様性が必要でしょうか。他者の声に耳を傾けていますか。環境的な

実践と生き方において、人間の文化と非人間的な生命との二項対立をどのように解決できるでしょうか。

So much for my thoughts for now. I would be very happy if they inspire you to one or the other train of thought. I will come to you in September with some of the above questions and I am already looking forward to our further discussions, our collaboration, our collective environmental practice.

今のところ私の考えは以上です。これらが皆様に何らかの思考のきっかけを与えることを願っています。9月には上記のいくつかの質問を持って皆様の元に伺い、さらなる議論や協力、環境的な実践を共にできることを楽しみにしています。

See you soon!
Marcus

それでは、またお会いしましょう！
マーカス

Forest research in Shimoichi

In September 2023, three Treenet measuring/recording stations were installed in the forest of Shimoichi in the province of Nara/Japan and supplemented by acoustic recorders that record the

sounds in the soil as well as the environmental sounds in the forest. The ecoacoustic observation system was set up at the invitation of the Swiss Embassy in Tokyo as part of its Vitality.Swiss program for a first artistic contribution to the Mind Trail Festival and the Tokyo Biennale 2023. The goal for 2024/2025 is to develop a sound installation and performances, among others for the Yoshino festival as well as the world exhibition in Osaka 2025 based on the data and recordings collected in the meantime. The scientific aim consists of a new holistic approach to monitor and compare microclimatic, ecophysiological and acoustic data of a forest ecosystem. And to compare the dynamics in a Japanese mountain forest with a similar setup in the Swiss mountains.

Repeated research trips to Japan will serve to maintain the recording and measuring systems and instruct local technicians to be able to maintain the system independently in the future. In addition, the participatory research format that was developed with the local population is to be continued and adapted to the new work situation and artistic starting point. In addition, further collaborations with the local population, the forest management company and other potential partners are to be explored in order to ensure a long-term artistic and scientific observation of the forest in Shimoichi. Possibilities will be examined to exhibit the installation "Growth Model", which was shown at the Tokyo Biennale in 2023, at other locations in Japan, as it is still stored in Tokyo and is related to the project in Shimoichi in terms of content, as it also translates data from the Treenet in Switzerland into sound.

Treenet: Scientific part

The TreeNet research and observation network [1] has been continuously collecting data on the health of the Swiss forest since 2011. The goal of TreeNet is to generate data sets with high temporal resolution on tree growth and tree water dynamics for research and to provide near real-time indicators of forest growth performance and their handling of drought stress. The network is operated by the Swiss Federal Institute for Forest, Snow and Landscape Research WSL. The increasing dryness in the course of climate change has its influence on the growth of trees in Switzerland as well as in Japan. Similarities and differences in the measurement data from Switzerland and Japan are the starting point for a discussion about climate-related changes in the forests of Switzerland and Japan. The discussion about climate change and the changing land- and soundscape is particularly important in Japan, as environmental issues have so far not been an important focus of public debate or social discourse, especially stimulated by artistic projects.

In recently published studies [2], the dynamics of tree growth in TreeNet were observed in detail for the first time and astonishing things were discovered: trees grow mainly at night, when they fill their vessels and cells with water from the soil and the turgor pressure in the cells is sufficiently high. Each tree species grows at a different rate and in different time windows during the year [3] - the increasing dryness in the course of climate change also has its influence on the growth of trees and forest health.
The scientific part of the Forest Voices project consists of investigating the interactions between microclimatic conditions, tree growth and faunal diversity in the forest and the forest floor over a period of three years - in the context of increasing drought and rising temperatures. Ecoacoustic methods will be used to acoustically measure biodiversity in the forest and soil soundscape [4]. Acoustic indices [5] are used in the analysis, where the dynamics of faunal diversity at the three sites and repetitions over the planned period are observed.
Auditory (acoustic recordings) and non-auditory (microclimatic and ecophysiological measurements) data will be combined in sonification experiments [6]. In the resulting augmented soundscape, relationships, interactions and patterns in the local forest community are to be recognized and

analyzed. By collecting and merging ecophysiological, microclimatic and acoustic data, a new and holistic approach will be tested that aims to investigate indications of interrelated processes in forest communities: How do climate, tree growth/health and faunal, acoustic diversity and activity relate to each other? Can previously hidden interactions, patterns and influences of the various parameters on each other be identified acoustically?

Forest Voices

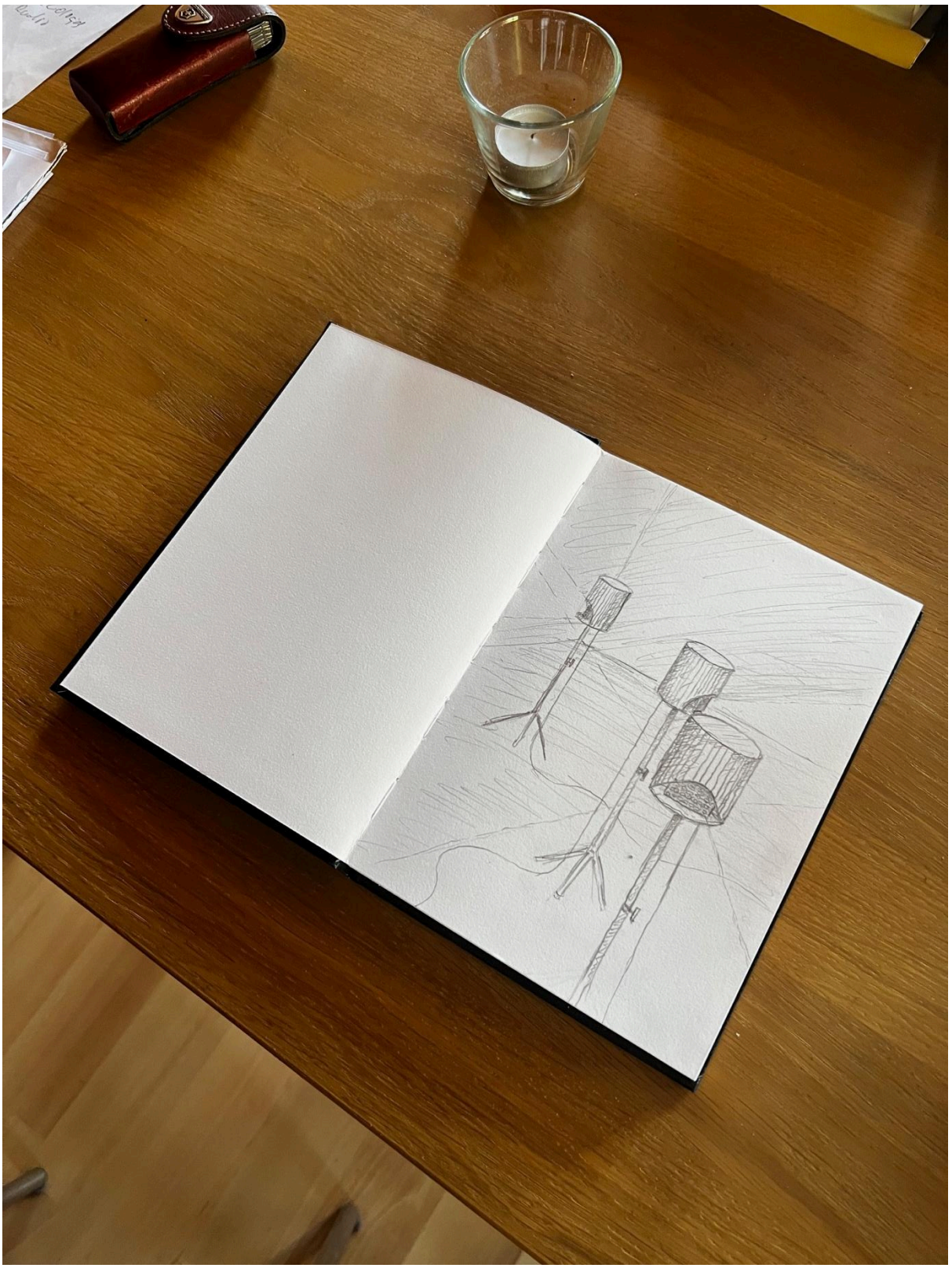
Climate change induced processes are often not directly perceptible, only scientific measurements exist. This is where the artistic idea comes in: How can the complexity of a forest community, the physiological processes in trees be given a voice that can be perceived by humans, how can the relationship between climatic processes, tree physiology and soil conditions be made perceptible artistically, and how can these processes be brought to a discursive level?

I would like the forest community to have its say in a holistic way - the inhabitants, foresters - the people living and working in the forest should be given a voice like the trees and become part of an artistic work/a sound installation to be developed, where their voices should be given the same weight as the sonified growth data, the voices of the trees. In this way, I artistically take up the approach of the Swiss forest protection activist Bruno Manser, who called his first book about deforestation and the displacement of the indigenous people in the rainforest of Borneo „Voices from the Rainforest“, where specially the inhabitants of the forest themselves have their say. For this purpose, I conduct a continuing conversation with residents and workers in how they perceive climate-related changes in the forest and how they imagine the voices of the forest.

Scalable and adaptable sound installation

A modular sound installation is to be developed for the Yoshino Art Festival in fall 2024 and for the World Expo in Osaka, which will transform objects and buildings on site into sounding objects. To this end, ultrasonic loudspeakers with audio players will be installed at neuralgic points. Ultrasonic loudspeakers generate a carrier frequency in the ultrasonic range in which audio signals are embedded. When the ultrasonic sound beam hits an object with a smooth surface, it is reflected and demodulated in the air: The signal becomes audible and creates the illusion that the object sounds. The sound range remains relatively narrow and therefore does not interfere much with the local ambient noise - it is integrated into the local soundscape.

The voices of the forest and its inhabitants can thus be transported to different locations: They come from objects like the voices of ghosts and thus bring the forest to places where it is not normally heard, be it the temple complexes in Yoshino or the Swiss pavilion at the World Expo in Osaka. The emitters themselves are designed as artistic objects that stand on tripods in front of the illuminated objects and are supplied with power via solar and battery.



Links

https://marcusmaeder.ch
https://treenet.info

https://mindtrail.okuyamato.jp
Sonification example of tree growth data
https://www.youtube.com/watch?v=xSTFfF7N3QI

References

1. Zweifel R, Etzold S, Basler D, Bischoff R, Braun S, Buchmann N, Conedera M, Fonti P, Gessler A, Haeni M, Hoch G, Kahmen A, Köchli R, Maeder M, Nievergelt D, Peter M, Peters RL, Schaub M, Trotsiuk V, Walthert L, Wilhelm M and Eugster W (2021) TreeNet–The Biological Drought and Growth Indicator Network. Front. For. Glob. Change 4:776905. doi: 10.3389/ffgc.2021.776905

2. Zweifel R, Sterck F, Braun S, Buchmann N, Eugster W, Gessler A, Häni M, Peters RL, Walthert L, Wilhelm M, Ziemińska K. Why trees grow at night. New Phytologist. 2021 Jun 12.

3. Etzold, S., Sterck, F., Bose, A.K., Braun, S., Buchmann, N., Eugster, W., et al. (2021) Number of growth days and not length of the growth period determines radial stem growth of temperate trees. Ecology Letters, 00, 1– 13. Available from: https://doi.org/10.1111/ele.13933

4. Maeder M, Guo X, Neff F, Schneider Mathis D, Gossner MM. Temporal and spatial dynamics in soil acoustics and their relation to soil animal diversity. Plos one. 2022 Mar 8;17(3):e0263618.

5. Sueur, J., A. Farina, A. Gasc, N. Pieretti, and S. Pavoine. 2014. “Acoustic Indices for Biodiversity Assessment and Landscape Investigation.” Acta Acustica United with Acustica 100 (4): 772–81.

6. Pauletto S, Hunt A. Interactive sonification of complex data. International Journal of Human-Computer Studies. 2009 Nov 1;67(11):923-33.