BEYOND SUSTAINABLE

Premium Organic's Regenerative Approach

www.premium-organic.com

STEFAN FELLNER

Founder and CEO of Premium Organic

“I grew up in the middle of this unique peatland- always with Lake Längsee and this extraordinary nature in mind. When I founded PREMIUM ORGANIC, it was natural and logical for me that all of the company’s activities should be aimed at protecting this beloved peatland and preserving it for future generations.”

MARKUS MOSER

Expert in Environmental planning and nature conservation

"Renaturation [restoration] involves structural measures to restore the moor to a functional state, habitat and biotope complex appropriate to its type in the long term. The measures are varied- but regulating the water balance and initiating rewetting are usually the most important main measures. Accompanying measures serve to promote biodiversity."

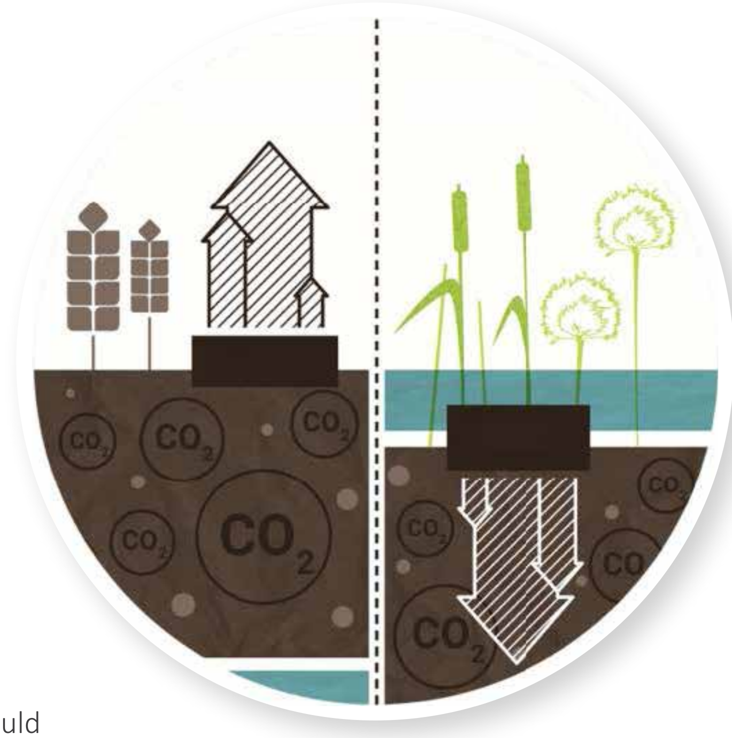
At Premium Organic, we work intimately with peatlands in the pristine Längsee-Moor, located in the mountains of Austria. We consider ourselves stewards who utilize, manage, and monitor these ecosystems while actively aiding in preserving their biodiversity and carbon-storage capabilities. Through our regenerative process, we obtain the primary materials for the ALPIN HEILMOOR EXTRACT™ while simultaneously improving the health of the peatland. This process was developed by sustainability experts to ensure it is minimally intrusive and, in the long run, provides additional ecosystem services to the peatlands.

What are Peatlands?

Peatlands, commonly referred to as bogs, are transitional ecosystems between dry land and wetlands, composed of approximately 95% water. They form due to the incomplete decomposition of plants in conditions of a continuous water surplus, distinguishing them from swamps that may experience periods of drying out. Intact bogs are characterized by a minimum 30 cm thick layer of peat, a partially decayed organic material derived from dead plants.

There are distinct types of bogs, including raised bogs and fens. Raised bogs rely solely on rainwater, which is low in minerals and oxygen. Consequently, raised bogs tend to be species poor, providing a habitat for particularly rare and adapted animals and plants. In contrast, fens receive groundwater inflow and typically form in areas where nutrient-rich water accumulates, such as depressions, silted-up lakes, ponds, and river catchment areas. This constant influx of nutrient-rich water makes fens more diverse in terms of species compared to raised bogs.

The Importance of Peatlands



Peatlands are unique ecosystems that play a crucial role in the well-being of our planet. Beyond their contributions to biodiversity and the water cycle, they also play a fundamentally important role in regulating the world's climate. This is because they are considered carbon sinks that hold substantial amounts of carbon that would otherwise be in our atmosphere in the form of greenhouse gases (GHG).

Despite only constituting merely 3 percent of Earth's surface, peatlands are the largest natural reservoir of carbon on the planet, housing an estimated 500 gigatons of carbon— nearly double the amount stored in all of the world's forests combined!

However, when peatlands are drained or disturbed, they can also be a significant source of greenhouse gases. This occurs as the organic peatland soils become exposed to oxygen and the decomposition process is stimulated. As microbes consume the organic contents of the soil, they release the CO2 and other GHG previously stored within it. Due to this important role of peatlands, their restoration and proper management have been placed at the forefront of the fight against climate change by leading environmental authorities.

Scan here to learn more about the importance of peatlands,

according to the United Nations Environmental Program

The Peatlands of the Längsee-Moor

The Längsee-Moor is a peatland in the Austrian mountains at about 560 meters of elevation. It is fed by pristine mountain water and contains Heilmoor (therapeutic peat) which is recognized for its therapeutic properties.

Moors, such as the one found at Längsee (= Long Lake), are wetland ecosystems inhabited by low vegetation, consisting of mosses, sedges, shrubs, and grasses. Due to the low-oxygen conditions in their waterlogged soils, decomposition unfolds at an exceptionally sluggish pace—slower than the rate at which vegetation in the moors deposits organic materials. Over millennia, these soils amass these materials, giving rise to deep deposits of partially decomposed organic materials known as peat. Large deposits of these soils are often referred to as peatlands. It is within these deposits that carbon is accumulated and stored.

Aside from storing carbon, these ecosystems also provide many other ecosystem services. They help improve water quality, aid in flood prevention, promote groundwater recharge, and can even help regulate local temperatures by evaporative cooling. Ontop of this, they are home to a diverse set of flora and fauna, some of which depend on these ecosystems to complete their lifecycle.

THE DEGRADATION OF PEATLANDS

Peatlands across the globe face degradation due to many different anthropogenic activities. These include agriculture, human development, invasive species, pollution, and climate change. Degradation results in the loss of ecosystem services provided by the peatlands, and as previously discussed, actually leads to the release of greenhouse gases.

The sensitivity of peatlands is highly tied to their unique hydrology. In order to function properly, they require an intricate balance of water levels that are influenced by precipitation, evaporation, plant water uptake, and the general flow of water through the system. All of these factors play a vital role in maintaining the unique characteristics of peatlands.

Alterations in hydrology, whether through drainage or physical disturbances, can lead to a cascade of negative effects. These include changes in vegetation composition, loss of biodiversity, and increased susceptibility to wildfires. Furthermore, disrupting this hydrological balance accelerates the decomposition of peat and releases the stored carbon, intensifying the environmental impact of peatland degradation.

Causes Of Peatland Degradation

Intentional Drainage for Agriculture and Development

In many instances, peatlands have been intentionally drained to make way for agriculture and human development. This practice is especially prevalent in agricultural because it renders the soil more conducive for farming. While many peatlands are no longer used for agriculture, there is a legacy of drainage channels that continue fueling degradation.

Physical Disturbances and Altered Hydrology

Different types of peatland degradation arise from physical disturbances, such as the construction of roads, canals, berms, and impermeable surfuces. These alterations disrupt the natural hydrology of peatland areas causing mild to severe impacts.

Invasive Species and Altered Ecosystem Composition

The introduction of invasive species can pose a significant threat to peatlands. Nonnative plants can outcompete and displace native species and lead to alterations in the composition and function of the ecosystem. In some cases, invasive species may even lower the water table due to high levels of evapotranspiration. This disruption has cascading effects on biodiversity and ecosystem dynamics.

Harvesting of Peat

Peat was historically harvested as fuel and is currently harvested as a horticultural resource. While modern harvesting is generally well regulated, they still cause an impact and have left a legacy of degradation in peatlands.

Peat Fire

While some peatlands are actually adapted to low-intensity fires, degradation has made them susceptible to devastating wildfires. These fires can burn for weeks to months, and cause long-term damage to peatlands.

RESTORATION OR ¨RENATURATION¨ OF PEATLANDS

Fortunately, our growing awareness regarding the crucial role these ecosystems play has spurred a global initiative to safeguard peatlands. The practice of ecological restoration, also known as renaturation, focuses on reinstating the essential functions and services offered by peatlands, with particular attention to their carbon sequestration capabilities.

At its core, the renaturation process involves restoring wetland hydrology in order to recondition the flow of water through the system. Drainage canals, for example, might be filled to keep the water table where it needs to be to foster the growth of healthy peatland ecosystems. This technical work is carried out by hydrologists and environmental scientists who utilize modeling and cutting edge methodologies to ensure the proper results. Additionally, it may encompass activities like revegetation, irrigation, and the establishment of biodiversity-enhancing biotopes such as open-water pools and ponds.

Benefits Of Peatland Restoration

Improved Water Quality

Peatlands play a critical role in regulating water quality by filtering and purifying water as it slowly flows through the peat. When peatlands are degraded their natural filtration system is disrupted, leading to increased sedimentation, nutrient runoff, and pollution. Peatland restoration can help to restore the natural water filtration system of the peatland, thus improving water quality and reducing the risk of pollution.

Flood Control and Prevention

Peatlands are natural floodplains that are capable of absorbing and storing large amounts of water during periods of heavy rainfall. When peatlands are drained, their ability to retain water is reduced, thus increasing the risk of downstream flooding. Peatland restoration can help to restore the natural flood retention capacity of the peatland and in effect, reduce the risk of flooding and protect downstream communities.

Groundwater Recharge

Peatlands are important sources of groundwater that help to recharge aquifers and maintain water supplies during the year. Since water moves through peatlands very slowly, it gives it the time needed to infiltrate into the sub-soils and become ground water. When peatlands are degraded or drained, their ability to recharge groundwater is significantly reduced. Peatland restoration can help to restore the natural groundwater recharge capacity of the peatland, ensuring a more reliable supply of water throughout the year.

Local Climate Regulation via Evaporative Cooling

Peatlands are important sources of evaporative cooling that help to regulate local temperatures and reduce the risk of heatwaves. When they are degraded, they may lose this ability and can contribute to increased temperatures. By restoring the natural evaporative cooling provided by the peatland, we can reduce the risk of heatwaves and improving local climate conditions.

Increased Biodiversity

Peatlands are home to a wide range of plant and animal species, many of which are adapted to the unique conditions of the peatland ecosystem. Peatland restoration can help to restore the natural biodiversity of the peatland and greatly improve it through the use of strategically designed biotopes.

Scan here to learn more about peatland restoration, according to the International Peatland Society

OUR REGENERATIVE AGRICULTURE PROCESS

Regenerative agriculture represents a paradigm shift in land management. It emphasizes the restoration and enhancement of ecosystem health while promoting sustainable agricultural practices. In fact, regenerative agriculture exceeds the expectations set by sustainability, endeavoring to create a positive impact rather than just minimizing its footprint.

At Premium Organic, our commitment to regenerative agriculture is reflected by our operations in the Längsee-Moor. By integrating renaturation practices into our practice, we aim to not only minimize the impact of our activities but also contribute to the overall restoration and preservation of peatland ecosystems. This is in sharp contrast with conventional peat harvesting, which requires an invasive and estructive intervention.

Conventional Peat Harvesting

- Release of greenhouse gases
- Loss of biodiversity
- Long-term degradation
- Loss of ecosystem services
- Water quality degradations
- Release of stored nutrients
- Loss of carbon storage

Our Regenerative Approach

- Improves carbon sequestration capabilities of peatland
- Maintains and even improves biodiversity
- Preserves and improves ecosystem services offered by peatlands
- Improves water storage and reduces flood risk

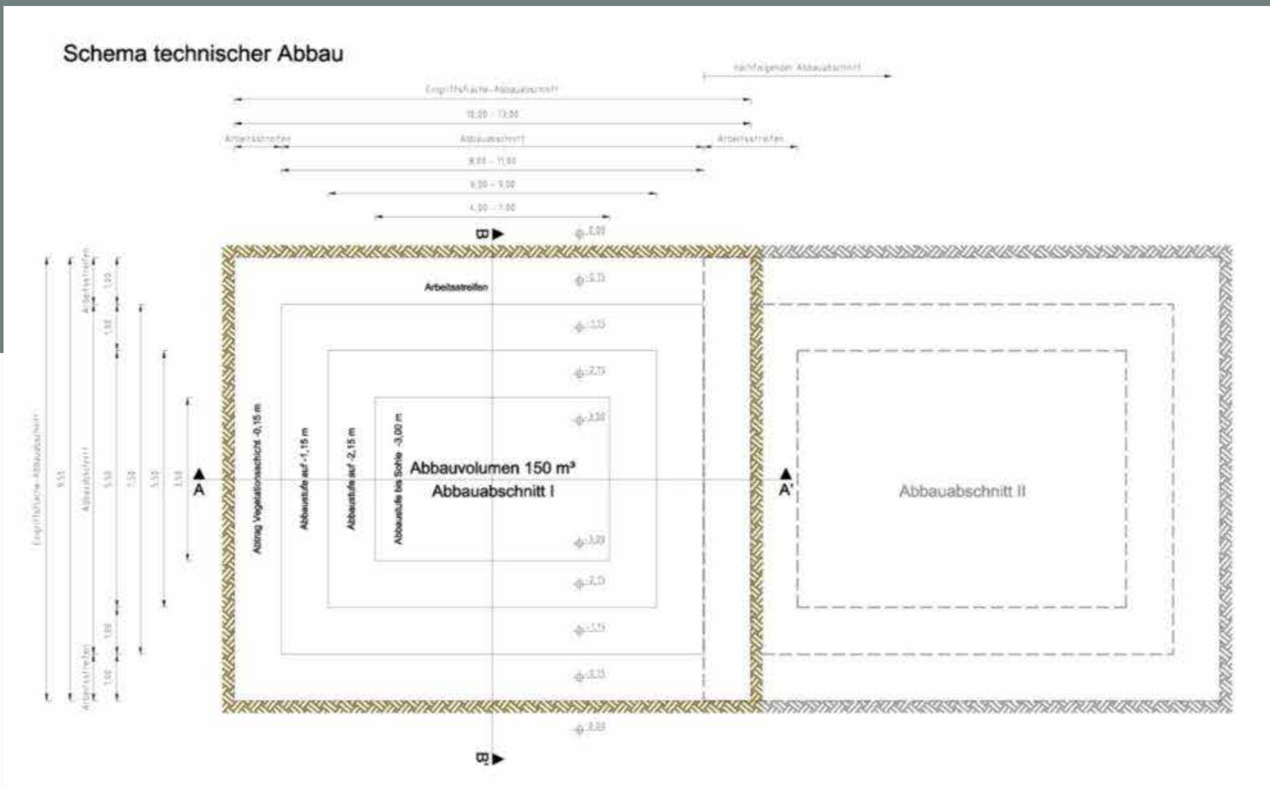
So, how do we do it?

The harvesting process takes place two weeks out of the year and is supervised by local construction and environmental authorities to ensure our activities adhere to environmental regulations and best practices. Following this extraction process, peatlands continue to be monitored, and our climate impact is quantified using cutting-edge modeling and quantification processes.

Our regenerative process is carefully conducted with a multi-step approach:

1. Planning

Before anything takes place, an ecological restoration plan is devised. This involves studying soils, flora, and any potential impacts we could have on the peatlands. Data is also collected for the future quantification of our climate impact. This step is crucial in ensuring that the extraction process is minimally invasive and that the peatland's health is improved. By studying the soils and flora, the restoration plan can be tailored to the specific needs of the peatland, ensuring that the extraction process does not disrupt the natural balance of the ecosystem.



Scheme of technical extraction of Heilmoor

2. Topsoil Preservation

The preservation of the topsoil helps to maintain the ecological integrity of the peatland. We start by building a non-invasive temporary road to facilitate the procedure. This road protects the peatlands during our processes and can be easily removed without causing long-term damage.

Harvesting begins with the delicate removal of the top layer, known as the mother topsoil. This layer contains the highest quantity of carbon, and thus it is carefully lifted off and set aside to preserve its ecological value. This step is crucial to minimize any disturbance and aids in the preservation of the existing flora and fauna within the topsoil layer.

3. Removal of Heilmoor

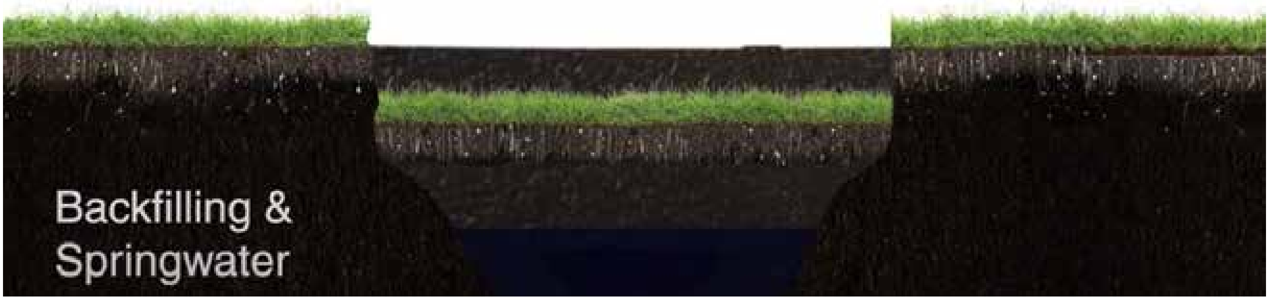
Only a specific underlying section of Heilmoor (peat) is removed for extraction. It is drained on-site ensuring that all water goes back directly to the moor. This approach minimizes disruption to the ecosystem while allowing for the sustainable harvesting of its valuable resources.

4. Extraction of ALPIN HEILMOOR EXTRACT™

The extraction of Premium Organic's products (ALPIN HEILMOOR EXTRACT™, PEAT POWDER+) is done using a patented method and ensures the preservation of the therapeutic properties of the raw material (Heilmoor).

5. Responsible Backfilling

After the extraction, all remaining material, including the carefully preserved topsoil, is carefully backfilled into the excavation site. This approach ensures the prompt regeneration of the ecosystem, as the topsoil supports the reestablishment of the peatland's biodiversity. Natural spring water is then used to refill the site. This facilitates the creation of an additional biotope that fosters the ongoing restoration by increases biodiversity.



6. Clean up

After the extraction process takes place, the temporary road and all equipment are removed. This is done under close supervision to ensure soils, vegetation, and topography are disturbed as little as possible.

7. Continuous Monitoring and Accompanying Measures

After this process, the worksite is continuously monitored to ensure that ecological restoration is occurring as planned. Accompanying measures may be included to further improve the functioning of the peatlands.

The accompanying measures include but are not limited to:

Improvements to the Moor Path

Enhancing the infrastructure within the area can help minimize human impact on sensitive habitats, reduce erosion, and provide better access for monitoring and management activities.

Removal of Cuttings from the Whistling Grass Meadow

This action helps maintain the natural balance of the grassland ecosystem, preventing the overgrowth of certain plant species that could outcompete others and disrupt the ecological equilibrium.

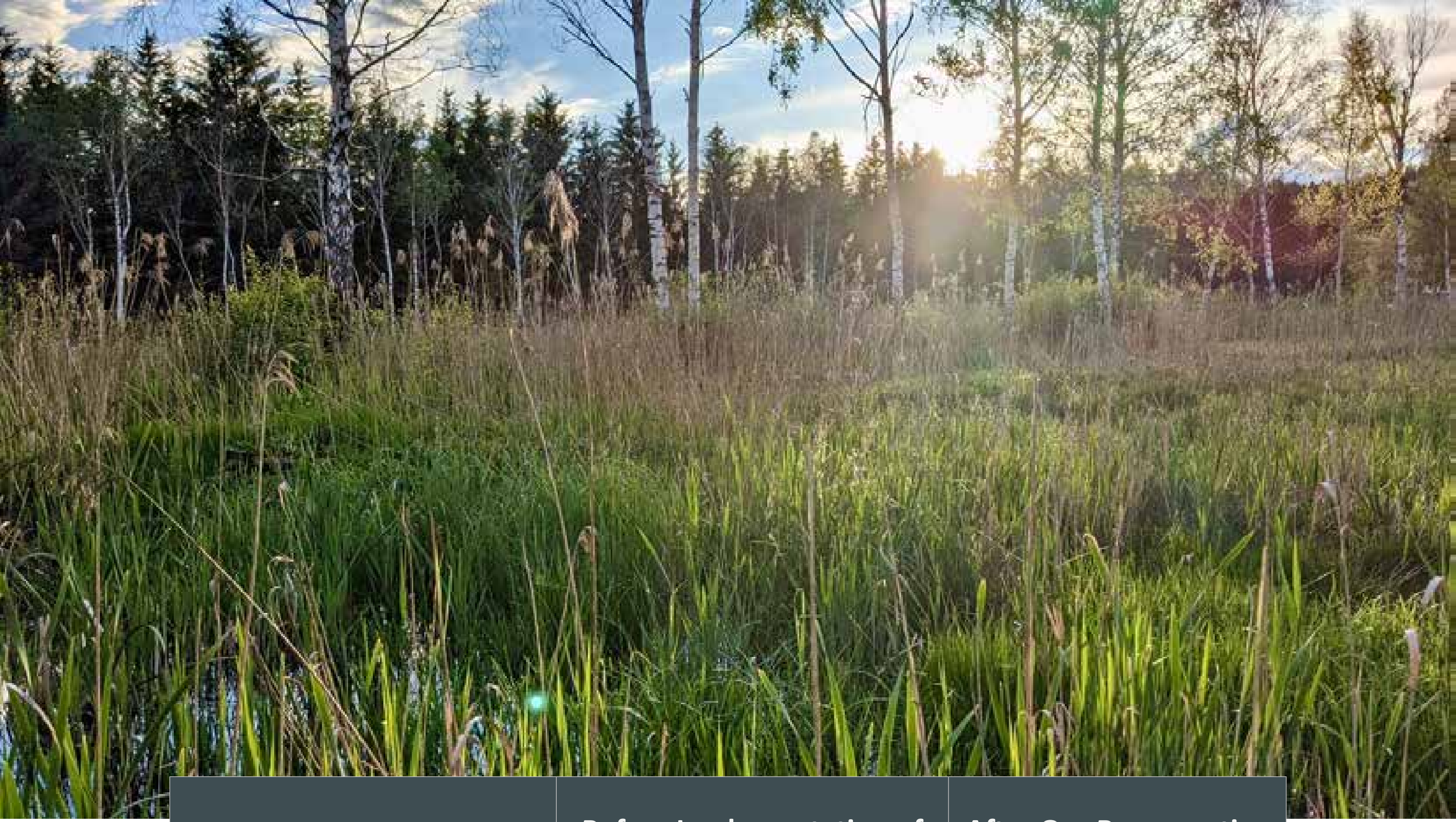
Neophyte and Tall Shrub Management

Managing invasive plant species (neophytes) and controlling the growth of tall shrubs can prevent them from outcompeting native vegetation, thus preserving the biodiversity and ecological balance of the area.

Scan here to see our video about our sustainable Heilmoor extraction

Comparative Analysis: Before and After the Regenerative Process

Before the implementation of regenerative practices, the peatland ecosystem faced severe environmental challenges. It suffered from disrupted biodiversity, compromised water quality, and heightened greenhouse gas emissions. Through the adoption of regenerative practices, our site now has a thriving ecosystem with significantly reduced greenhouse gas emissions, improved biodiversity, and restored natural features. This showcases the positive impact of our dedicated environmental stewardship.



Environmental Impact	Before Implementation of Ecological Restoration	After Our Regenerative Process
Greenhouse Gas Emissions	High	Significant Reduction
Biodiversity	Degraded	Enhanced
Peatland Health and Structure	Degraded	Healthy and Functioning
Water Quality and Filtration	Compromised	Enhanced Capability
Groundwater Recharge	Reduced Recharge	Effecient Recharge

Research and Innovation: Pioneering the Future of Regenerative Practices

Our team is commited to continuous improvement through ongoing research initiatives and inovation. We actively stay up-to-date on the latest research and engage in research projects aimed at refining and advancing our regenerative processes. Ecological restoration is a dynamic field. This commitment extends to the exploration of cutting-edge technologies, methodologies, and sustainable practices that align with our vision.

QUANTIFYING THE CLIMATE IMPACT

To ensure we stay true to our environmental commitment, we thoroughly monitor and quantify any impact we might have on the peatlands. Our quantification is based on the Verified Carbon Standard (VCS) methodology, using the Greenhouse Gas Emission Site Types (GEST) modeling framework.

Verified Carbon Standard (VCS) Methodology for Temperate Peatlands

The Verified Carbon Standard (VCS) methodology serves as a crucial framework for estimating the reduction of net greenhouse gas emissions resulting from the restoration of peatlands. At its core, the methodology employs the 'GEST' approach—Greenhouse gas Emission Site Type—which utilizes ground vegetation composition as a proxy for peatland greenhouse gas emissions. This comprehensive methodology plays a pivotal role in assessing the environmental impact and effectiveness of peatland restoration efforts. The VCS methology is the goldstandard in the industry and has gained widespread acceptance within the scientific community.

In essence, the GEST model operates by attributing emission values to distinct vegetation units within the worksite. These values are approximated using emission data previously collected at comparable sites through peer-reviewed methodologies. For instance, if the GHG emissions from a specific vegetation type are known, we can extrapolate emissions for similar sites in other locations. In practice, the GEST model is a tad more intricate than this.

Groundwater Recharge

Vegetation mapping is a critical component of the quantification process. It serves as the foundation for assigning Greenhouse Gas Emission Site Types (GESTs) and estimating greenhouse gas (GHG) emissions from peatland areas. This process involves a comprehensive assessment of the vegetation composition, soil characteristics, water stage, and other relevant factors within the peatland site.

The vegetation mapping process begins with a thorough survey of the peatland area by a team of experienced botanists and ecologists. This survey aims to identify and document the various vegetation units present within the site, taking into account the diversity of plant species, community structure, and spatial distribution. High-precision GPS devices are utilized to accurately record the location and extent of each vegetation unit, ensuring precise spatial data for subsequent analysis and monitoring.

Assignment of GESTs

Following the initial survey, the collected data is then used to assign specific GESTs to each vegetation unit. The assignment of GESTs is guided by a detailed understanding of the emission-relevant site characteristics of each vegetation unit. By integrating these site-specific characteristics, the GEST assignment process ensures that the estimated GHG emissions accurately reflect the unique environmental conditions of the peatland site.

Estimation of GHG Emissions After Renaturing Measures

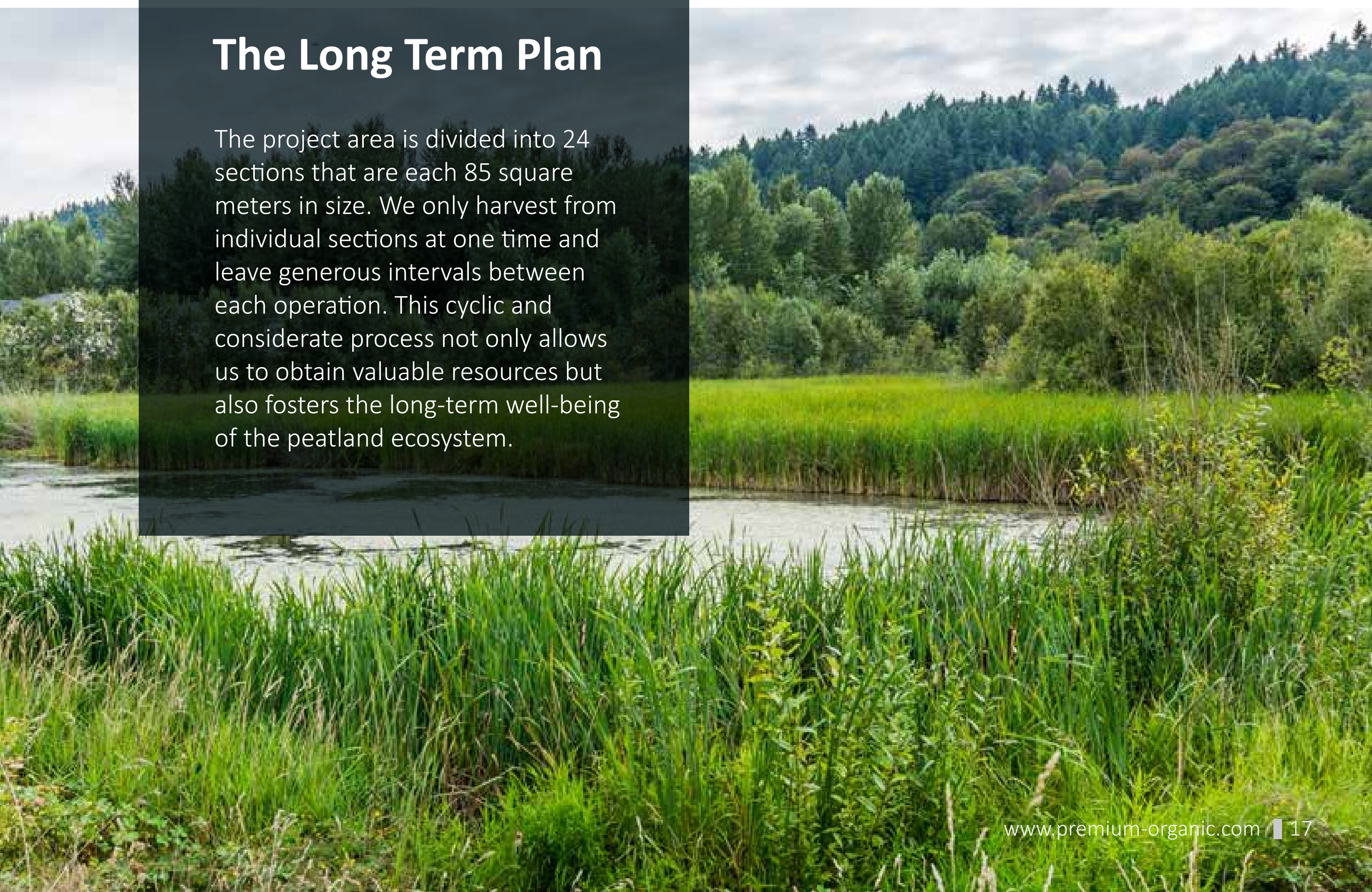
The GEST assignment process is not static and is designed to accommodate changes in vegetation composition and site characteristics over time. As the vegetation within the peatland site evolves in response to restoration efforts, the GEST assignments are updated to reflect these changes, allowing for dynamic and adaptive quantification of GHG emissions. This adaptive approach is essential for capturing the evolving climate impact of peatland restoration activities and ensuring that the emission estimates remain accurate and reliable throughout the project lifecycle.

Monitoring

To ensure the accuracy and reliability of GHG emission estimates, our process includes a strict monitoring schedule. This includes monitoring of vegetation types, water table depth, and observations of fauna. By integrating these monitoring activities into the quantification process, the methodology enhances the accuracy and reliability of GHG emission estimates.

The Long Term Plan

The project area is divided into 24 sections that are each 85 square meters in size. We only harvest from individual sections at one time and leave generous intervals between each operation. This cyclic and considerate process not only allows us to obtain valuable resources but also fosters the long-term well-being of the peatland ecosystem.



Map of sections of extraction

Quantification Metrics

To calculate the expected annual GHG emissions we utilized the following factors:

- **Site types (GEST type):** Different site types have different carbon storage and loss characteristics which impact GHG emissions.
- **Water stage (WS):** The water table depth influences the balance between CO2 and CH4 emissions, making it an important factor in emission calculations.
- **Emission factor (EF):** The emission factor represents the amount of GHG emissions per unit area and is based on field measurements and modeling.

All of thes factors help us estimate the annual GHG emissions from our site. By multiplying the area of the peatland by the emission factor, the calculations provides an estimate of the annual GHG emissions for our site **(EM)**.

GEST type	WS	Area (hectacre)	EF	EM
Peatland Grassland	2-,2+ 2	0.35	24	305 tons
Dithces and herbacious vegetation	3+	0.02	16.5	0.33 tons
Total Area				306.29 tons

RESULTS OF OUR CLIMATE IMPACT

Using the methodologies previously discussed, our team of scientists has estimated that our activities on the Längsee-Moor will help to bind more than **300 tons of CO2 equivalents per year**. If it wasn´t for our restoration efforts, these greenhouse gasses would have otherwise entered the atmosphere and contributed to global climate change.

Our Commitment to the Climate Movement

Our activities in the Längsee-Moor not only utilize best-practices outlined for peatlands by the European Union and the United Nations Environmental Program, but they exceed current industry standards. By improving the carbon-sequestration capabilities of peatlands, our efforts extend outside the Längsee-Moor and become part of the broader movement against climate change. Through efforts like ours we hope to help our global community reach sustainability goals set out by the United Nations and the International Paris Agreement.

Our Assurance of Sustainability & Quality

The use of sustainable practices significantly enhances the quality and effectiveness of our ALPIN HEILMOOR EXTRACT™. It is 100% natural and adheres to NATRUE and COSMOS certifications, thus exceeding conventional beauty standards. These certifications symbolize our unwavering commitment to organic and natural ingredients, environmentally friendly processes, and the highest ethical and sustainability standards.

When you select our ALPIN HEILMOOR EXTRACT™, you're embracing a product that meets the strictest criteria for natural and organic cosmetics. This ensures not only effectiveness but also a responsibly sourced and produced product. It's a choice that can improve your everyday well being, while actively being a sustainable and environmentally friendly.

CONCLUSION

Our regenerative approach to the extraction of Heilmoor (therapeutic peat) from the Längsee-Moor demonstrates our commitment to sustainability and environmental stewardship. By intertwining ecological restoration with the extraction process, we not only ensure minimal impact on the delicate peatland ecosystem but improve its ecological function.

At Premium Organic we aim to set a commendable example of sustainable business practices and environmental responsibility. For us, there is nothing more important than providing a high quality product, while protecting the health of the peatlands from which we obtain it. Through these efforts, we hope to make a meaningful impact that goes beyond just the Längsee-Moor, but aids in a global movement to protect our planets health.

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