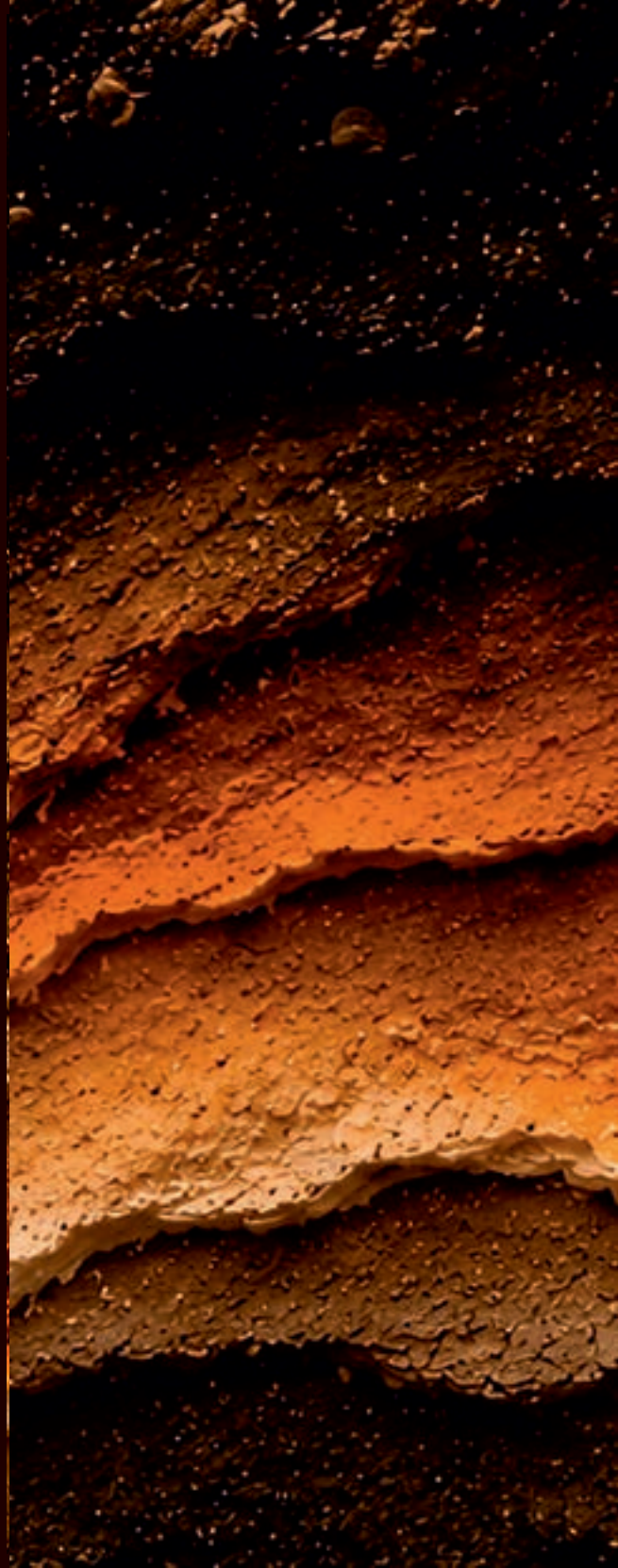
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MISSION SOIL

17 NOVEMBER 2026

THE ECONOMICS OF GREED
VS. THE SOURCE
OF SURVIVAL





MISSION SOIL

THE ECONOMICS OF GREED VS. THE SOURCE OF SURVIVAL

SPECIAL SESSION
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FOREWORD

Paweł Chmieliński

Soil is the source of survival. Our water, our food and our health depend on its health, and yet the economy still treats it as a free storehouse. Soil forms over centuries, yet more than 60% of Europe's soils are already in poor condition, and the economic model does not account for these losses.

On these pages, we descend into the soil profile, layer by layer: from the organic layer, where the economy of values begins, through the planetary perspective, the multispecies community of life beneath our feet, the psychology of the subsoil and the strength of the parent rock, to the horizons that soil opens up for us through science, culture, art and... everyday care for the land.

Stories that bring together scientific data and lived experience are accompanied by the art of Relict Soil. They lead to one question: who will keep the promise to soil over the next thirty years?

We are soil scientists and economists, plant breeders and bio-innovators, psychologists and anthropologists, essayists and soil educators, artists, a conductor of an orchestra, activists and parents. We come from different organisations and walks of life, and we intend to keep that promise. We act for people, because soil is where we live and work, where our food grows and where we rest.

The economics of greed, takes what is cheap and leaves the cost to others and to the future. The economy of value, on which we draw, starts from what a community decides to protect. Soil, water, food and life form one nexus, and what happens to one happens to all: when soil degrades, it holds less water, yields less food and shelters less life.

Soil matters to us economically, and a large part of our cultural code refers to it, although we rarely notice. We put down roots, we stand on firm ground, we long for our native soil. We want to bring that hidden code to light.

So we build, in Poland and across Europe. We are creating a social movement, the Soil Orchestra, in which many voices play for one cause. We are shaping a new way of communicating science, in which research and data reach people through art. We are placing soil in culture, where lasting change begins.

The essays that follow carry one message: the future of people is decided in the soil, and it can still be decided well. This publication is one step. The road is longer, and we invite you to walk it with us.

CENTURIES TO FORM, DECADES TO LOSE

Organic layer: where an economy of value begins

Paweł Chmieliński

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Economies keep their accounts on the surface and their capital underground. A handful of fertile soil takes centuries to form. On ploughed land it can be lost within decades, since erosion of cultivated fields runs ten to a hundred times faster than soil formation (Montgomery, 2007). This ratio holds the whole problem: soil and the economy run on different clocks, and only one of them is entered in the books.

Soil is a living system that regulates the cycles of water and carbon and sustains the biodiversity of land. It stores more than three times as much carbon as the atmosphere (Lal, 2004). Its degradation travels in a cascade, through water and climate, to the quality of food and the health of populations.

The invisibility of soil has a date of birth. Early modern thought turned nature into a mechanism subject to calculation, and the economy came to treat it as an external storehouse, priced at the cost of extraction while the cost of renewal stayed off the books. Patel and Moore (2017) call this architecture a history of cheapness. A price remains true about the transaction and loses its truth about the state of the world. Two asymmetries keep the model alive. The losses surface over decades; the gains arrive within a season or a few years. The gains go to the few, while the costs spread across health systems, water management and generations not yet born, who have no voice in the decision.

The costs are countable and have been counted. Soil degradation in the European Union, where more than 60% of soils are unhealthy, costs an estimated €40.9 to 72.7 billion a year, and the figure may double once biodiversity loss, floods,

droughts and health effects are included (Panagos et al., 2025). Mainstream economic tools compress such sums by design. When a €1.25 billion annual loss of crop productivity caused by erosion was fed into a general equilibrium model, the loss of EU GDP came to about €155 million, one eighth of the original (Panagos et al., 2018). Trade and mobile capital absorbed the shock; the soil stayed lost. GDP records flows, and soil is a stock of capital.

A structural error resists technical correction. Removing it requires a decision that precedes valuation: the recognition of soil as a public value. Hausner (2019) shows that an economy reduced to market valuation loses sight of the existential values on which its own continuity rests. Directive (EU) 2025/2360 gives Europe a common definition of soil health and an obligation to monitor it. The tools and remedies already exist – scientists know this. The treatment still awaits a decision: by business, by politicians, by us.

Hence the normative claim: soil should be recognised as a common good with the status of critical infrastructure. A resource invites the question of how much can be taken. Infrastructure asks how much must be invested for every other part of the system to keep working. Soil, then, is infrastructure that cannot be built again.

Understanding the problem can be compared to uncovering a soil profile, layer by layer. Below the organic layer opens the planetary perspective, in which soil is a legacy for future generations. Next lies the topsoil, a multispecies community of life, and beneath it the subsoil, where the psychology and culture of soil

understanding take shape. Deepest rests the parent rock: soil as a force that binds people together. This analysis ends in horizons, the layers of a profile in soil science and the perspectives soil opens for the future in public life. We must understand that our future as humanity depends on soil more than we realise.

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BUILDING SUSTAINABLE SOCIETIES THROUGH HEALTHY SOILS, PEOPLE, NATURE AND KNOWLEDGE

Francesca Bampa

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Eighty years ago, UNESCO's Constitution entered into force with a simple conviction: that peace is built in the minds of women and men through knowledge, dialogue and cooperation. Since then, UNESCO has worked to translate this vision into action by setting international standards, protecting cultural and natural heritage, advancing freedom of expression, supporting quality education, and placing science at the service of humanity. At the heart of this mission is a commitment to building sustainable societies by strengthening the relationship between people and nature.

This vision comes to life in UNESCO-designated sites, where communities steward places recognized worldwide for their exceptional value to humanity. These include World Heritage sites that safeguard places of outstanding universal value, Biosphere Reserves that promote balanced relationships between conservation and sustainable development, and Global Geoparks that combine the protection of geological heritage with education and local development. Beyond their environmental significance, these sites represent living laboratories where knowledge, culture, science and sustainable economic development coexist and mutually reinforce one another.

Managed to safeguard their natural beauty and cultural and scientific values, UNESCO-designated sites also provide tangible benefits for local communities. They support sustainable livelihoods, strengthen territorial identity, attract responsible tourism, foster innovation and contribute to long-term resilience while balancing economic development with environmental sustainability.

PLANETARY PERSPECTIVE

The scale and impact of these sites are highlighted in UNESCO's 2026 report *"People and nature in UNESCO-designated sites: Global and local contributions"*. According to the report, the world's 2,260 UNESCO- designated sites cover more than 13 million square kilometres, an area larger than China and India combined, and are home to nearly 900 million people. Together they protect extraordinary biodiversity, harbouring more than 60% of the world's mapped animal species, while their forests absorb approximately 15% of all carbon captured globally by forest ecosystems. Yet these invaluable territories are increasingly under pressure, with nearly 90% facing growing risks from climate change, land-use change, and other human impacts.

Despite the diversity of these landscapes and communities, they share a common lesson: human cultures and natural systems are deeply interconnected. Protecting one requires caring for the other. And local actions can lead to global contributions, providing practical solutions that connect environmental stewardship with social well-being and economic sustainability.

Among the natural assets that best illustrate this relationship between people and nature, soil plays a particularly important role. Soil is far more than a medium supporting agriculture and food security. From a planetary perspective, it is a life-support system, a cultural foundation that underpins biodiversity, climate regulation, water security, livelihoods and economic prosperity. It serves as a major reservoir of biodiversity, stores and filters water, supports livelihoods and acts as a critical ally in addressing climate change. Healthy soils underpin productive economies, resilient food systems and sustainable development pathways.

However, while soil scientists have long warned about accelerating soil degradation, limited public awareness continues to hinder the transition toward sustainable soil governance. This gap between scientific knowledge and societal understanding highlights the importance of working with local communities, placing them at the centre of efforts to protect, restore and sustainably manage soils.

Through the **UNESCO Soil Initiative**, a global network of Biosphere Reserves and Global Geoparks act as **soil sentinels** generating better soil knowledge, management and policy. Their work contributes directly to land restoration, climate action and biodiversity conservation while demonstrating practical approaches that can be replicated elsewhere. These designated sites are centres of innovation where sustainable soil practices can be developed, tested and shared. Through collaboration with local communities, Indigenous Peoples, site managers and international partners, new knowledge on soil health is generated and exchanged. In doing so, the initiative helps bridge the gap between scientific research, policy development and local action. The role of these sites goes beyond scientific soil observations. They serve as guardians and stewards of their soils, compiling and sharing soil health studies while telling their soil stories to audiences around the world. In this way, soil becomes visible not only as a scientific resource but also as a cultural, social and economic asset that deserves collective care and investment.

This is where **soil literacy** becomes essential, helping people understand what soil is, why it matters and how everyday choices influence its health. By increasing

understanding across society, soil literacy transforms scientific knowledge into informed decision-making and practical action.
More broadly, soil literacy represents a global effort to foster a soil-literate society through education, collaboration and action. By raising soil awareness, these initiatives empower communities to become active participants in soil stewardship.

At the forefront of these efforts is the project **SOILSCAPE**, an initiative that harnesses the power of art and creativity to make soil science accessible to diverse audiences through interactive and inclusive approaches.
By connecting scientific knowledge with cultural expression, the project creates new opportunities for engagement and helps people develop a personal connection to the ground beneath their feet.

Our mission is clear: by building soil literacy, supporting innovation in UNESCO-designated sites and fostering collaboration across disciplines and sectors, we are investing in soil health and the natural capital that underpin food security, climate resilience, sustainable livelihoods, inclusive economic growth and long-term prosperity.

In this journey, UNESCO plays a key role by scaling up these efforts internationally. What began as local engagement is feeding a growing global movement that reconnects communities with soil and strengthens the relationship between people and nature.

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THE LAST LIVING FRONTIER IS BENEATH OUR FEET

Topsoil — Soil as a Multispecies Community

Michał Moś aka Zaklinacz Traw

We dream of colonising Mars while exhausting the living world that feeds us.

What if the most endangered world is the one beneath our shoes?
We look up at the stars and ask whether life exists on Mars. Meanwhile, every day, we walk over one of the most astonishing living systems in the known universe — and barely notice it. A teaspoon of healthy soil may contain billions of microorganisms — more than the number of humans on Earth. Soil is not simply crushed rock, a substrate for fertiliser, or a brown surface waiting to be exploited. It is a crowded, complex society: bacteria, fungi, roots, nematodes, arthropods and countless interactions that recycle nutrients, build structure and sustain our food.

One scientific estimate suggests that roughly 59% of Earth's species live in soil, although substantial uncertainty surrounds that figure. Imagine: much of the planet's biodiversity may be hidden in a world we routinely call "dirt." [1]

A supermarket receipt does not show the real price
We buy lettuce, rocket and broccoli in Lidl or Biedronka. We compare prices, freshness and appearance. But who asks what happened to the land that produced them? Was the soil protected or exhausted? Did the farmer build organic matter, improve infiltration and support soil life — or simply keep extracting another harvest?

After two decades working as a scientist and farmer, and returning recently from Murcia — one of Europe's major vegetable-producing regions — I cannot separate the food on our plates from the fields beneath it. Intensive production can be extraordinarily efficient. Yet efficiency measured only in tonnes and euros

can conceal losses of soil structure, biodiversity and long-term resilience. The cheapest vegetable may carry a cost that never appears at the checkout.

Across the European Union, assessments indicate that around 60–70% of soils are unhealthy. Soil degradation is not an abstract future threat: it is already shaping water security, farming costs, ecosystems and the resilience of food production. [2]

Do we need a conversation about soil rights?
We speak about human rights, animal welfare and the rights of future generations. But what obligations do we owe the living systems on which those rights depend? Can soil have a right not to be poisoned, sealed beneath concrete or mined of its fertility? This is not a demand to equate soil with people. It is a challenge to the economic assumption that land exists only to be used.

We have abolished legal slavery in many societies, yet we still describe nature as a resource that must produce more, faster, for less. Is that language part of the problem? Perhaps the deeper question is not whether soil belongs to us, but whether we are willing to become responsible members of its community.

A garden is not automatically a healthy place to grow food
Urban gardening can reconnect people with nature, rebuild neighbourhoods and teach children where food comes from. But enthusiasm must be accompanied by evidence. In cities with long industrial and transport histories

— including Kraków — some soils may contain elevated lead, cadmium or other contaminants. The risks depend on the specific site, exposure route and crop. We cannot responsibly declare half of Kraków's allotments unsafe without representative testing. We can, however, insist on a simple principle: test first, grow food safely, and use clean raised-bed media where needed.

And let us avoid another oversimplification: not every illness is caused by polluted soil, nor is every farm field contaminated. The scientific argument is stronger when it is precise. Soil health, human health and food safety are connected — and deserve proper monitoring rather than either complacency or panic.

The revolution is not another chemical. It is a different relationship. Regenerative agriculture begins with practical agronomy: keep living roots in the ground, reduce unnecessary disturbance, diversify crops, protect the surface, recycle organic matter and manage grazing and water intelligently. These practices are not magic, and their results depend on climate, soil and farming system. But they can improve soil function, water infiltration and resilience when adapted well to place.

The social transformation is just as important. What if we rewarded farmers for improving soil organic matter and water-holding capacity, not only for maximising short-term yield? What if schools taught children to recognise a healthy soil structure as naturally as they recognise a healthy meal? What if urban communities tested their garden soil together, shared composting knowledge and demanded traceability not only of food, but of land stewardship?

Mars can wait. Our soil cannot.
Martian regolith is not a ready-made equivalent of Earth's living topsoil. Growing food there would require substantial engineering and biological support.
On Earth, we already possess a remarkable system — developed over immense spans of time — that filters water, stores carbon, supports biodiversity and helps feed humanity. Yet we behave as though it were infinitely replaceable.

The real frontier is not millions of kilometres away. It begins a few centimetres beneath our feet. And the question for Kraków is not simply "How much soil are we losing?" It is: "What kind of society continues to lose the very thing that makes its future possible?"

When you leave this talk, ask three questions: Who grew my food?
What happened to the soil that grew it? And what am I prepared to change so that the next generation inherits living ground?

Come hear the story

Dr Michał Moś | Topsoil: Soil as a Multispecies Community | Open Eyes Economy Summit, Kraków | 17 November 2026

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THE VALUE AND VALUES OF INNER SOILS

Nikola Patzel

Human soil relation is an existential and cultural issue, we cannot split off ourselves from it. Basics for human survivability come from soil, and any religion or big ideology has given our earth and soil a fitting place in its worldview (see Patzel et al., 2023, and the references there). Mother Earth, Matka Ziemia, Terre Mère for example: An attitude of reverence towards the fertile or devouring foundations of our existence in cultural history shows a certain polarity with technology and economic concepts such as ‘resource’, ‘natural capital’ or ‘basis of production’. In this article, I put forward the thesis that within human beings our ‘outer soils’ effectively interchange with our ‘inner soils’. Both have implications for the condition of land cultivated and used by humans, and for the way it degrades or builds up.
Rock and water, air, and energy together with the whole terrestrial tree of life over time are commonly considered being outer soil forming factors in front of our eyes. On the other side, when looking for factors of inner soil formation that are behind the eyes and largely beyond the scope of humans’ outer senses, the “anatomy of the psyche” (Edinger, 1985) and the mostly unknown expanses of psycho-spiritual realms that are effective in human individuals and groups might be considered (Jung, 1957–1990).

Myth and materialism

In 2010, I wrote in a paper on “The Soil Scientist’s Hidden Beloved: Archetypal Images and Emotions in the Scientist’s Relationship with Soil” for the International Union of Soil Science’s book of Landa & Feller on Soil and Culture (Patzel, 2010, p. 205): “From the outset, the practice of modern soil science has been a double-grounded process, being simultaneously in touch

with outer observations and inner images. Scientists have studied soils with their senses and their means of consciousness, while also being fascinated, driven and guided by other factors of their inner life. These internal factors are emotional inner images and ideas, and they often act unconsciously. Some keywords of emotional inner images, expressed by pioneers and leaders of soil science, are: Mother Earth, vital force, the Stone of the Sages, the encompassing whole and total control. They can be found in the writings of Liebig, Sprengel, Fallou, Dokuchaev, and Jenny, as well as contemporary soil scientists, and I call them their inner soil."

In contrast, see for example this expression of anthropocentric materialism from the heyday of communism, issued by Polish-German agronomist Otto Rosenkranz (1963, p. 196, my translation): "When detaching forceful from such folksy but scientifically untenable ideas: the soil would be something special, full of life, life-bringing, fertile, maybe even mysterious and unfathomable in its coherence and action, and when replacing these ideas by a dialectic materialistic perspective, then the soil will become a carrier system, one of many means for work, like others, who allow humans, when used by them, to produce plants out of water, sun energy and elements for plant nutrition. Solely man is producing; neither plants nor animals, nor is the soil 'capable' to bring forth a harvest."
This radical and ruthless devaluation or negation of soil ecosystem properties, natural autonomy and related cultural values was not just an aberration of communist ideology; one may also hear farmers in countries with capitalist structures saying time and again: "I produce wheat, milk and meat."

When scientists regarding soil in their statements and theories maybe unconsciously touch on emotive patterns of imagination like ‘Mother Earth‘ or ‘basic elements’ of soil and life, if they are addressing ‘vital forces’, ‘soil health’ and so on, they too are likely in interaction with factors of their inner soil, not solely with produces of their observation and modelling. In monographs, papers, and interviews, some scientists show their motivation, for example, using metaphors and images that have a symbolic content. One may discuss controversially how independent, or not, the scientific findings and theories of leading soil scientists or economists were and are from their sociocultural context and worldview and from their inner soil. There are questions also of methodological nature: How to trace effects of archetypal patterns in the mental landscape of an individual, and how to interpret symbolic images used? They can personally be experienced as motivating and fascinating, spiritual, and numinous, but in most cases, they can only be traced indirectly by observations and the comparative cultural study of what is said about soil and done with it.

Quite ancient mythical patterns in the human psyche may join in and play along up to the most recent waves of development in science, technology, and agricultural policy. It can, for example, be interesting to assess contemporary moves on structures of the Demeter myth (fosters relation-oriented, sometimes also ‘esoteric’ approaches), or whether they follow the myth of Prometheus (fosters scientific ‘enlightenment’ and technology). Both mythical patterns were early documented in ancient Greece. How do they frame the role of humans in nature? Even today, for example, referring to the Pan-Slavic Mokosz

(or the Baltic Laima) again, the Matka Ziemia Wilgotna, the if gentle “wet” keeper of the soil pores, sources, and hidden doors towards the soil and world below (Katičić, 2003), in a more or less figurative sense: that might help to rekindle people’s sense of the living soil, trigger their heartfelt mythic longings of reconnection with nature and an indwelling spirit, or it can just be a manipulative marketing ploy.

Myths and their structural patterns need not be considered ahistorical or eternal. The history of religion and basic worldviews show that people’s inner world changes faster than their physical evolution. Goethe’s word in his Faust (1832/1908, p. 79), “Formation, transformation, the eternal mind’s eternal recreation,” applies to inner processes, too. But however, within change, there appears to be some continuity and recurrence as well, which also means that history can repeat itself in a similar way. This can be seen again and again worldwide in our present societies, for example, their global resource politics, their intra- and international alliance politics, and their wars. In addition, it can be observed that some old religious myths and mythologemes continue to fascinate people today in new forms: for example, in best sellers such as Tolkien’s Lord of the Rings opus, Rowling’s Harry Potter series, Riordan’s Percy Jackson series and sequels, or movies such as the Star Wars or Game of Thrones series. So it need not come as a complete surprise if some mythical structures are also at work in the area of real human relationship with nature and the way people deal with the soil: inner patterns that did not just fell from the sky or rise from the depths yesterday.

Dealing with Earth inside

Swiss Philosopher Paracelsus von Hohenheim (1493/94–1541) wrote in the sixteenth century about an inner sky and earth in humans: The whole cosmos were inside every human being with the specific qualities of its luminaries and elements, acting inside them (Paracelsus, 1965, pp. 526–527). Because of the correspondence of the inner and outer world, human imagination was supposed by Paracelsus to produce effects outside: “Thus the [inner] imagination attracts the [outer] colour and shape” (Paracelsus, 1932, p. 268, my translation). We may suppose that the inner soils of the women and men, their societies, and cultural matrices are involved in their relation with nature and soil. This psychic maybe spiritual world of inner soil contains individually acquired personal elements and structures, and it has objective interpersonal and transpersonal, archetypal elements and windows that are wide open.

To approach the inner soils of humans, it can be suggested: (1) to take note of a variety of worldviews and emotive ideas concerning nature and soil; (2) to note that from the outset, modern soil science (as well as agriculture and economics) has been a double-grounded process, being simultaneously in touch with outer observations and inner patterns of imagination; (3) to consider the possibility that mythical patterns in the human psyche may join in and play along even in the most recent waves of development in science, technology, and policy — with potentially negative or positive outcomes. After all, one may be facing the decision to make a fourth step in consciously approaching one’s own inner soil, or not: How can these drivers be more consciously faced and partly integrated into the life of a soil scientist, agronomist, economist or other soil

stakeholder who is concerned with the outer soil? Is the inner soil split off from the official life and work and therefore kept unconscious or placed in a separate tray of ideas? Or is it more integrated into science and public communication, unfolding while cautiously and carefully considering its diverse and ambivalent opportunities? Documented inner soils from different cultural areas may help to find one's own.

What can be the practical relevance of such insights and perspectives? Simply said, human beings are relevant to their own actions. This statement is no more trivial if one's self-image is not bound by narrow-minded illusions such as the 'rational actor' or 'homo oeconomicus', but if one accepts barely knowing oneself. When it comes to an "open-eyed economy" — as opposed to an "economy of greed" — and when it comes to the foundations of our sustenance and, quite specifically, to living soils: then, on a personal and cultural level, it can be rewarding to keep the eyes open even to the inward nature of human beings, to their inner world, their 'inner nature' and also their 'inner soil'.
There are obviously very contradictory, somehow dissociated, conflicting psychological or even spiritual forces at work inside.

A task for consciousness and culture
Yet, within this interplay of archetypes and our minds' eternal transformation, an individual has a small degree of freedom to deliberately decide which ways the ego turns. In dealing with nature, it is like with political polarisation, religious disputes, and other conflicts over a so-called 'truth': realness is revealed through its impact. Psychologist of religion William James wrote (1902, p. 506 f.):

„Yet the most unseen region in question is not merely ideal, for it produces effects in the world. (...) But that which produces effects within another reality must be termed a reality itself, so I feel as if we had no philosophic excuse for calling the unseen or mystical world unreal.“. This can be terribly destructive — what is often referred to as ‘inhuman’ — or something can lead to the most astonishing turns of events, towards something like reconciliation and brother- and sisterhood amongst people and beyond. Mind matters regarding soil and culture: our psyche and behaviour are not just determined by outer being, but in interrelation with it.

Facing all these intriguing and motivating, fascinating or overwhelming archetypal forces, historical and cultural knowledge can offer a certain orientation. Not in terms of where an individual, community or nation should go, but regarding the very different paths that have been trodden time and again, forming, as it were, human trails through the jungles of the world and the self (comp. Jung, CW 8: §390). Do not underestimate the powerful effectiveness and meaning of the deeper layers of our natural and mental landscapes — neither of the soil nor of the inner world. Hellish greed, aggression and the foundations of pathological narcissism, for example, are just as prevalent in us (and some soil beings, who knows, maybe too), as love, hope, and even maybe rejected living cornerstones of one faith or another.

From down below and its immanent transcendence, there is something up to us. From the vibes and partly secularized reverberations of polytheism, monotheism and of the foundations of scientific worldviews, there is something up to present

that can shape our future. But we need to be aware: The potential for harmful identification with, for manipulation and misuse of the inner powers that be, or becoming obsessed and possessed by them, is no less than their creative strength. We may see ourselves in conflict or cooperation with our inner and outer nature, our outer and inner soils. That is quite a challenge for individual awareness and consciousness, and for new cultural developments.

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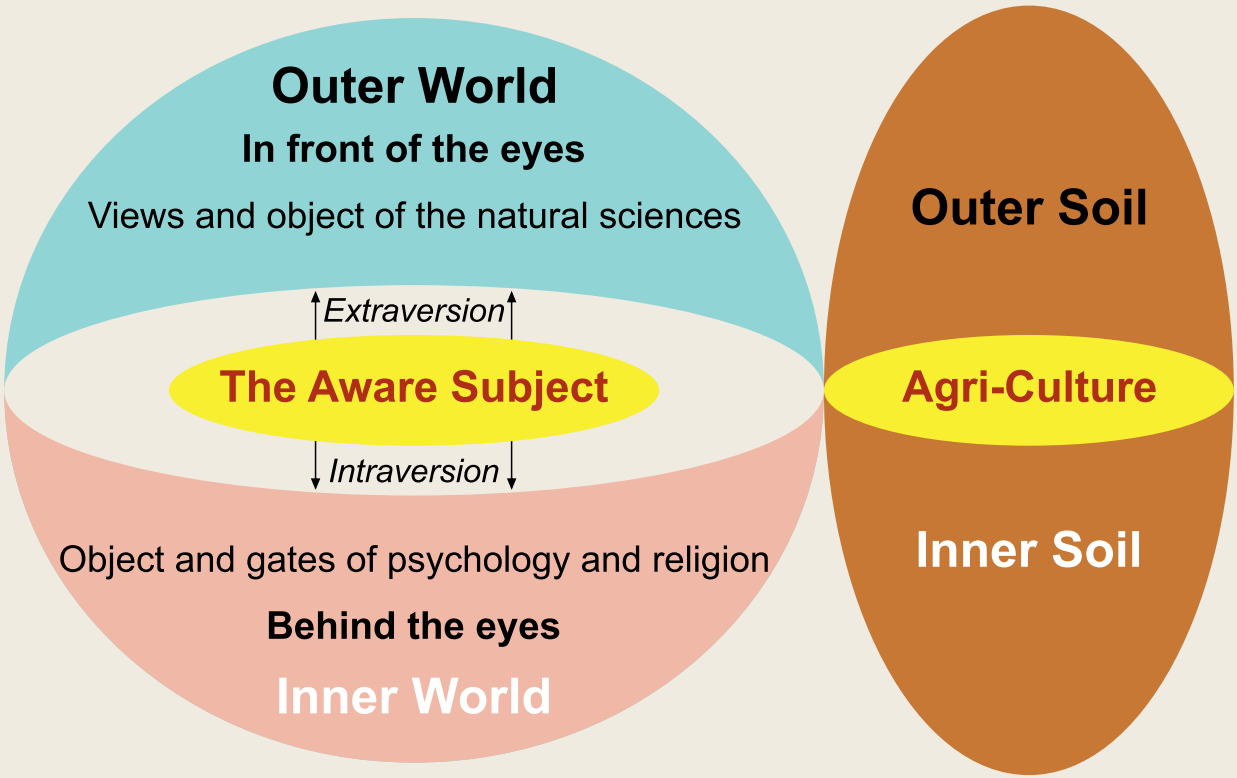


Illustration by the author



Picture from Christine de Pizan (1406): (Epistle of the Goddess [the proper noun Othéa is assumed to mean the poetic Greek formula Ὦ θεά (O Thea) = oh Goddess]) Épître d'othéa. Bibliothèque nationale de France (Paris), Département des Manuscrits, Division occidentale, Côte: Français 606.

SOIL HORIZONS

Anka Wandzel

Let me begin with a question: what does home taste like to you? Is it crisp and honey-sweet, like a late-season Polish apple? Or rich and earthy, like freshly gathered mushrooms sautéed in garlic and butter, with mashed potatoes as soft as clouds?

For me, home is the taste of cucumber brine and pickled cherries from my grandmother's allotment garden. She kept the jars in her cellar, always prepared for harder times. As a child, I saw her stores as a sign of abundance. Yet that abundance was born of scarcity: the food shortages of communist-era Poland and the resourcefulness of those who lived through them.

For my children, growing up in a city three hundred kilometres from where I was born, home has a different taste. It tastes of tart tomatoes picked straight

from the vine on our communal urban farm, and of black mulberries from a tree that took root on its own just outside our Warsaw flat. The mulberries are almost too sweet, with a faint edge of bitterness. Every June, their thick, sticky juice stains my children's fingers and the pavement beneath their feet. These are the first tastes of summer: simple pleasures, hunger easily satisfied.

But now summer also brings drought. Even at four and seven, my children notice it. They help us on the farm, so they know what it means. I watch them worry about the soil as they would about a sick relative growing weaker before their eyes. It hurts to see them worry. But if I want to teach them resilience and how to grow their own food, I cannot shield them entirely from the loss and uncertainty every seasoned farmer knows. In these turbulent times, a harvest is no longer a given.

Across the world, grain and potato crops are succumbing to drought. As bumblebees die out through the overuse of herbicides, the tomatoes, berries and peppers they pollinate are disappearing with them. More crops are lost to Russian missiles and tanks, which drive toxic waste deep into the soil and contaminate some of the richest chernozem soils on our planet. These soils once supplied a third of global grain exports, feeding around 400 million people a year.

Meanwhile, natural soil-forming processes take between a hundred and a thousand years to produce just 2.5 centimetres of new, fertile humus. Despite our repeated attempts to bring it into step with human progress, soil lives

by planetary time: long, cyclical and indifferent to us. As local and global soil ecosystems break down, the future erodes before our eyes. The comfort, security and sense of permanence I found as a child in food grown just beyond my grandparents' windows are becoming a privilege, slipping beyond the reach of more and more people.

So when I ask what home tastes like to you, I am really asking: what are you willing to do to preserve that taste? And do you know whom you owe your sense of contentment and security to?

In Poland, we often say that it is best to keep your feet firmly on the ground. But the more I learn about the world of soil beneath us, the more I realise we should do the opposite: let ourselves sink ankle-deep into its rich, soft depths.

The very surface on which I now stand so confidently is, in a sense, a fiction: an optical and cognitive illusion born of the limits of our senses and knowledge. Contrary to childhood imaginings and the soil-profile diagrams of our earliest geography lessons, soil is neither a dead crust nor solid ground, neatly layered in orderly levels, called „soil horizons". In reality, soil is more like a busy subterranean city or an unfamiliar planet teeming with alien life.

Soil ecologist Frank Ashwood estimates that a square metre of living soil is home to some fifty thousand springtails, a hundred thousand mites, three hundred earthworms, several thousand small potworms, five million nematodes and around a kilometre of fungal mycelial networks, which continually transfer

information, RNA and nutrients between species, shaping Earth's climate in ways we are only beginning to understand. According to mycologist Merlin Sheldrake, the species composition of the soil and the particular mycorrhizal fungi inhabiting it can affect the flavour, texture and scent of our crops. Strawberries will bear fruit with different flavours. Basil will change its scent. Bread will gain or lose its sponginess. So that distinctive aroma of berries from your grandmother's garden, that you assosiate with home and safety, may be the result of relationships and exchanges in that particular patch of soil, rather than just a trick of nostalgia.

Soil is one of the most creative forces of life on our planet. It produces 95% of the food humans consume, as well as all the fossil fuels and minerals without which the modern world, with its batteries, aspirin, concrete and plastic, would never have come into being. To say that humanity depends on soil is an understatement. And this abundance comes not from human ingenuity but from organic processes: the decomposition of bodies, the erosion of stones, the settling of pollen, the germination of seeds, the slow seepage of rain, the drift of wind, even the droppings of earthworms.

Yet Western civilisation, with its palaces, parks, schools and courthouses, is not in the habit of admitting that it stands, like a colossus with feet of clay, on the uncertain ground of a living, restless tangle that could swallow it at any moment. Perhaps this is unsurprising. Without stripping soil of its agency, neither state power in its present form nor any form of capital could exist, whether we are speaking of international property development

funds, agricultural magnates or the largest technology companies.

But as I wrote in my book “The Art of Survival”, devoted to ecological art, the agency of nature and the invisible structures of care behind our everyday lives, when we overlook soil’s capacity to make worlds, we also overlook its wealth of survival strategies, its cycles of community-building and its rhythms of cultivation.

For example, soil retains water in the environment far better than any human invention. A single cubic metre of soil treated with respect can store as much as three hundred litres of water. Why do we not harness this capacity responsibly, especially in Europe, which already suffers from severe drought and is still warming faster than any other continent?

We have made the conditions we now struggle to live in. But we can still change them if we work together, with one another and with soil ecosystems, both local and global. It is high time we stepped down from the pedestal on which the Enlightenment placed our species and began to cultivate different stories and values — or broaden our soil horizons, so to speak.

This conviction comes not from idealism but from experience. It is why I joined the Polish Soil Orchestra and the European SOILSCAPE project. It is why I write and weave stories with plants and soil, and take my children on long walks through their local environment every day, as though we were visiting our closest relatives. It is why I joined an urban farming initiative, even though, for most

of my life, I managed to kill every houseplant I owned. Not any more.

Every Saturday, I cycle with my family to MOST, our cooperative urban farm in Warsaw, where we spend a few hours cultivating a better, more abundant future with others. We farm only a third of the land we lease from the city council, leaving the rest to the existing ecosystem of the Vistula riverbank to support its biodiversity. We try to build the farm's infrastructure from found or recycled materials. We use no chemicals to grow our crops, yet we still triple the harvest each year. This season, we harvested over 1,500 kilograms of produce.
We do not cut down the trees already growing on the farm, nor do we dig the soil more than necessary, so as not to needlessly destroy other species' habitats.
We share our knowledge and practices with anyone interested. We teach children permaculture gardening. We work with the public and private sectors to ensure the farm's wellbeing. And we do not pretend to know better than the local soil what it needs to survive.

We learn other rhythms of everyday life from it: those of earthworms, snails, cockchafers, tits and crows. We notice when it suffers from drought. We water it and give it shade. We pray for rain on its behalf. Instead of managing it, we let it inhabit and transform us, reshaping our ways of being, thinking and acting.

Another future is possible. We need to broaden our soil horizons and work together, so that for our children and grandchildren, home will taste of abundance rather than loss.

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RELICT SOIL

Expedition & Exhibition

Sylwester Stabryła i Piotr Dawid Woroniec

Relict Soil – Expedition & Exhibition is an international art-and-research project led by Sylwester Stabryła and Piotr Woroniec as part of the European project SoilScape – Soil Orchestra (Horizon Europe). At its heart lies the discovery of soil as something more than the ground on which life unfolds. We approach it as living matter, a vessel of memory, history and the identity of place – and, at the same time, as an extraordinary creative medium.

The project is rooted in a direct encounter with nature and an attentive exploration of local landscapes. On our field expeditions we travel across different regions of Poland, observing the structure and colour of the earth, collecting soil samples, and searching for natural pigments and traces of the material past concealed within its layers. The materials we gather become the starting point

for painterly experiments and artistic practices in which the earth is not merely the subject of representation, but the very substance of the painting. Central to our inquiry is the process by which a work comes into being through the collaboration of human and nature. We use natural pigments, clay and raw canvas, exposing our materials to the forces of the environment – not least by burying them in the ground. The marks, stains and textures that emerge in this way become an unpredictable record of time and of the workings of natural processes. The painting thus ceases to be solely the product of the artist's gesture and becomes, too, a testimony to a dialogue with matter and the surrounding environment. Art and education workshops, run in collaboration with local institutions and communities, form an integral part of the project. Together, participants discover the properties of soil, learn how natural materials can be used, and embark on creative work of their own. What emerges are paintings, compositions, objects and experimental works that reflect individual experience and the bond between people and the place they inhabit.

Relict Soil brings together art, education and ecological reflection. It invites us to rediscover our immediate surroundings, to perceive the value hidden in seemingly ordinary matter, and to forge a deeper connection with nature. Every expedition and every encounter becomes an opportunity to explore local heritage, to share experience, and to seek new languages of artistic expression. This is a story of an earth that remembers. Of layers of time inscribed in its structure. Of traces that have endured beneath the surface. And of art, which allows us to bring them to light, to read them, and to give them new form.

SOWERS

AN ARTISTIC INTERVENTION BY RELICT SOIL

The joint work of the Relict Soil collective — Piotr Dawid Woroniec and Sylwester Stabryła — weaves together performance and paintings made with soil pigments and the technique of eco-painting. Expansive, multi-part compositions summon cross-sections of the earth: its strata, its traces, its shifting hues and its material fragility. The openings visible in the paintings are at once part of their structure and an invitation to act. They are the places where a painting ceases to be merely a painted object and becomes a space of participation.

During the performance, the artists invite members of the audience to write down their own intention on a small scrap of paper and then to place it in one of the openings. A personal gesture — quiet, intimate, almost ordinary — is entrusted to the earth: hidden away, given into the keeping of an extraordinary, primordial matter. In this way the participants become co-creators of the work while lending it a communal dimension. Each slip of paper stands alone; together they form a polyphonic record of hopes, worries and longings.

Yet sowing holds no promise of growth. It is an act of trust in processes that can never be fully controlled, and a reminder that life needs time, the right conditions and care. In this sense, the performance turns our attention to ecology not through an abstract slogan but through an experience of closeness: through touch, through choice, through the conscious act of entrusting something to the soil. The question of what we sow becomes a question of what future we wish to sustain — and what price we are prepared to pay for it.

The practice of Relict Soil unfolds through field expeditions and encounters with local communities. The collective's workshops and actions have taken place in Narol, Ustka, Zakopane, Poręby Kupieńskie, Grodzisk Mazowiecki and Wola Sękowa, among other places. These experiences form part of a concept the artists are developing within the Soil Scape / Horizon Europe programme. The Kraków meeting carries this process into the space of a conference, as an accompanying event of the Open Eyes Economy Summit 2026 and an invitation to reflect on the value we ascribe to the earth.

RELICT SOIL








LET'S PLAY FOR SOIL, SO IT NEVER FALLS SILENT

Let's play for soil, so it never falls silent

Katarzyna Gizińska

Conductor of the Polish Soil Orchestra

Beneath the surface, a concert is playing that no one hears. The underground world plays its part without pause or applause, and everything that grows above ground depends on it. Yet for years we have treated this stage like a floor: we walk on it, pave it over and assume it can take anything. Time to retune.

The **Polish Soil Orchestra** is one of eight orchestras in the European SOILSCAPE project, from Portugal to Finland. It brings together an ensemble whose members complement each other perfectly: scientists, farmers, artists, educators, and representatives of local government and civil society organisations. Each brings their own sound, and together they tune to a single note. Art, theatre and sound reach places that data alone cannot.

Soils & Arts Festival

The Polish Soil Orchestra hits the road · March–June 2027

From March to June, the festival will travel to various places in Mazovia and beyond. The programme is being co-created with the members of the Orchestra, and the first three parts have already been scored:

Relict Soil: Expedition and Exhibition. Sylwester Stabryła and Piotr Dawid Woroniec head into the field to collect soils from different regions of Poland and turn them into pigments. They also bury linen canvases, letting nature finish the painting. In workshops, local residents paint their own works with earth, which together will form one large-format composition. The festival's finale will be an immersive exhibition where soil can not only be seen, but also touched.

Solid Ground. Garden City, Living Soil. The Centre for Culture and Civic Initiatives in Podkowa Leśna opens with workshops: sensory walks with a camera, mandalas made of coloured earth and permaculture meetings in the garden. These experiences will grow into a theatre performance in which actors, video, live music and physical theatre weave science together with local stories and poetry.

Warsaw Soilcentrism: Urban Soil Encounters. The MOST Cooperative Urban Farm invites people to workshops on composting, ceramics, movement and storytelling, into a “mud kitchen” and an open-air soil laboratory. Participants co-create soil art installations and record the sounds of soil, and the whole experience will be gathered in a Soil Education Handbook. As a finale, the farm is planning a feast from its own harvest and pizza from a clay oven.

The score is open. The greater the support, the more places, events and encounters with soil the programme can hold. The Orchestra is looking for partners and patrons who want to co-create the Soils & Arts Festival. There is still room on stage for more instruments.

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THE POLISH SOIL ORCHESTRA TEAM





EU MISSION SOIL

NEMESIS

Desertification is not a distant problem – it already affects southern Europe, and droughts are increasingly hitting Poland too. NEMESIS (2025–2029) is building a network of five Living Labs in Spain, France, Italy, Cyprus and North Africa, where farmers, scientists and local communities work together to tackle soil degradation across the Mediterranean. From 60 pilot sites, "lighthouses" are set to emerge – places that show healthy soil is possible even where water is scarce.

Funded by the European Union under the Horizon Europe programme, grant agreement No 101219087.

LandShift

How do we design landscapes that can withstand climate change? LandShift (2024–2027) brings together 26 European partners who use satellite data, nature-based solutions and New European Bauhaus principles so that land stores carbon, protects biodiversity and serves people well. At the heart of the project are "living spaces" co-created by residents, local governments and scientists. One of them – the Masovian Living Space – is taking shape in Poland.

Funded by the European Union under the Horizon Europe programme, grant agreement No 101182007.

SoilTribes

Soil is more than the ground beneath us – it is a community we all belong to. SoilTribes (2024–2027) is building “soil tribes”: a network of over a thousand people and organisations from science, business, government and society, bringing soil back to its rightful place in everyday life. The project dedicates more than €1.75 million to grants for grassroots initiatives and runs hundreds of events, from workshops to soilathons; in Poland, its partner is the Municipality of Michałowice.

Funded by the European Union under the Horizon Europe programme, grant agreement No 101157729.

SOILSCAPE

What if the story of soil could be told through music, painting and performance? SOILSCAPE (2024–2028) brings together 19 partners, including UNESCO, who form eight Soils and Arts Orchestras – in Poland, Bulgaria, Finland, France, Germany, Portugal, Switzerland and Italy. Each plays its own part in a shared Symphony for soil, connecting artists, scientists, farmers and local communities. Its open call selected 36 artistic projects, including one by the Relict Soil collective.

Funded by the European Union under the Horizon Europe programme, grant agreement No 101156511.

ERDN MISSION



We bring together science, public policy and rural communities so that Europe's rural areas remain places to live, work and thrive – today and for generations to come.

The European Rural Development Network (ERDN) is an international research network that, since 2002, has brought together research institutes and universities from Central and Eastern Europe and beyond. It unites economists, sociologists, geographers and public-policy researchers around a shared purpose: providing sound, interdisciplinary knowledge on the transformation of rural areas, agriculture and food systems.

Rural Europe faces challenges that will shape the future of the continent: the climate and energy transition, demographic change, food security, digitalisation, the evolution of the Common Agricultural Policy and the further enlargement of the European Union. We believe that sound decisions require robust scientific evidence – and that such evidence is best built through cooperation across borders.

We pursue this mission through joint research and international projects, regular scientific conferences (more than twenty since 2002) and the peer-reviewed, open-access yearbook "Rural Areas and Development".

Our work serves policymakers at national and European level, public institutions, local communities and the research community – especially early-career researchers, to whom we pass on the experience of earlier generations of scholars.

PROGRAM MISSION SOIL

OEES 2026, 17 November 2026, 17:00 Kraków, Poland

Session concept: a spiral of values, the layers of soil (by Anka Wandzel)
The session takes the form of a journey through the layers of a soil profile – from the organic layer and a planetary perspective, through the topsoil and subsoil, down to the bedrock – with each layer standing for a different dimension of soil's value: economic and political, global and ecological, agricultural and communal, cultural and psychological, and finally artistic and activist. Like a spiral of values, the conversation moves from the surface towards ever deeper foundations, and then rises again through the soil horizons that open up perspectives for our shared future.

dr hab. Paweł Chmieliński - European Rural Development Network (ERDN), Institute of Rural and Agricultural Development, Polish Academy of Sciences (IRWiR PAN); Member of the OEES Programme Council
Introduction / Organic Layer: why should soil matter to everyone today? The role of soil in Europe's future values-based economy, policy and infrastructure, and its importance for food security.

dr Francesca Bampa - UNESCO Regional Bureau for Science and Culture in Europe; soil carbon researcher and advocate for soil education
Planetary Perspective: soil as our legacy for future generations. Soil literacy and ecology around the world, and the role of soil in water resource management and carbon storage.

dr Michał Moś - Energene Seeds Ltd.; plant breeder and bio-innovator who listens to the sound of living soil
Topsoil: soil as a multispecies community. Regenerative agriculture and soil regeneration; climate-resilient cropping systems on degraded land; urban farming; and new networks of rural cooperation.

dr Nikola Patzel - International Union of Soil Sciences (IUSS), Working Group "Cultural Patterns of Soil Understanding"; soil scientist and psychologist exploring how cultures understand soil, plants and life
Subsoil: the psychology of soil, soil literacy and ecological education. Understanding soil beyond its economic value and placing it at the heart of public cultural policy.

Ms Katarzyna Gizińska - European Rural Development Network (ERDN); Lithuanian Centre for Social Sciences, Institute of Economics and Rural Development (PhD candidate); Polish Soil Orchestra
Bedrock: soil as a powerful unifying force. Transdisciplinary soil activism and policy, arts-based research, and the many voices of the Soil Orchestra.

Ms Anka Wandzel - MOST Cooperative Urban Farm; essayist and anthropologist, a tracker of hope in urban weeds
Soil Horizons linking the layers of a soil profile with the horizons soil opens up for our future.

The Sowers, an artistic intervention by the Relict Soil collective, asks what we entrust to the soil and what future we choose to sustain. In the foyer of ICE Kraków, the artists present eight paintings made with soil pigments and invite participants to write down an intention and place it in an opening in the canvas. Sowing offers no certainty of growth: it is an act of trust that needs time and care.


BUSINESS
AND DEMOCRACY
SPECIAL SESSION:
17 November, 17:00–18:00, S4A
MISSION SOIL: The Economics of Greed
Versus the Source of Survival
Artistic Intervention: "The Sowers" by the Relict Soil Collective & the Polish Soil Orchestra
Session under the patronage of European Rural Development Network and the Institute
of Rural and Agricultural Development of the Polish Academy of Sciences, as part
of the projects SoilScape, LandShift, Nemesis, SoilTribes (Horizon Europe)
Paweł Chmieliński
Francesca Bampa
Michał Moś
Nikola Patzel
Anka Wandzel
Katarzyna Gizińska
Open Eyes Economy Summit
17–18 November 2026, Cracow + online

SONGS OF NATURE

Angela Gaber & Marcelina Sokół



The Bieszczady-based duo Angela Gaber and Marcelina Sokół listen closely to what nature plays and turn it into music. In “Songs of Nature”, traditional borderland songs, rooted in the rhythms of nature and old tales, meet original compositions born of a need for silence and mindfulness.

Their voices are accompanied by crystal and Tibetan singing bowls, a gong, handpan, kalimba and shamanic drum, instruments whose vibrations you feel not just with your ears but with your whole body. This is music for anyone who wants to stop rushing for a moment and start listening: to themselves, to one another, to the earth.

Angela Gaber is a vocalist, cultural animator and art therapist. She draws on roots music from many cultures, and her debut album is called “Opowieści z ziemi” (Tales from the Earth). Marcelina Sokół is a music therapist and multi-instrumentalist. She leads relaxation concerts, sound ceremonies and “Uwolnij Głos” (Free Your Voice) workshops. Together they recorded the album “Ukojenie” (Solace).

MOVIE
RELICT SOIL

Film available on YouTube

STILL FROM THE FILM ORKA (*PLOUGHING*)
PIOTR DAWID WORONIEC, SYLWESTER STABRYŁA
CINEMATOGRAPHY: BARTOSZ FIC
PREMIERE: 17 NOVEMBER 2026





Mission SOIL: The Economics of Greed versus the Source of Survival
Brief of the special session at the Open Eyes Economy Summit 2026,
Kraków, 17 November 2026

Scientific Editor
Paweł Chmieliński

Authors
Francesca Bampa, Paweł Chmieliński, Katarzyna Gizińska, Michał Moś, Nikola Patzel, Aleksandra Pyl, Sylwester Stabryła, Anka Wandzel, Piotr Dawid Woroniec

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Andrzej Hałasiewicz

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