Cooperative Approaches

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ECOLOGICAL CRISIS

« The only path offering humanity hope for a better future is one of cooperation and partnership. »

Kofi Annan

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EDITORIAL

Living together on planet Earth

By Dominique BENARD

Many of us, humans at the beginning of the 21st Century, began our lives in a different world where 'man' was perceived as an 'autonomous agent, consciously acting on his history and resolving social conflict by dominating nature'.The disconnect between nature and society seemed obvious to us. At the time we spoke of the environment to describe that which surrounded us, where we could extract all the resources we desired without worrying about exhausting them, and then dump our waste with the expectation that nature would recycle it. Of course we were concerned about respect for nature and its protection, but it seemed an eternal, limitless reality, separate from us, and one which we had to dominate and exploit as intelligently as possible so as to continue our inexorable march towards progress.

This all changed at the end of the 20th century with the emergence of the Anthropocene concept. Scientists had discovered that human activities were capable of bringing about changes of a telluric nature, i.e. impacting the planet's climatic and geobiological regime, the balance of the "Earth system" that sustains life;

and that this evolution was not linear. We learned that x% of greenhouse gasses generate x degrees of global warming. There was likely to be a "tipping point" beyond which the "Earth system" would change its trajectory and move towards a new, resolutely warmer stable state. Yet one the conditions and impacts for which no one could predict.

There was growing awareness that humanity had boarded a small planet in the solar system

whose resources were not infinite afterall, and that we could not continue to extract them at the same pace without adverse consequences for the Earth's ecosystems that support the essential fabric of life. We could no longer avoid existential questions such as: “How much global warming and sea-level rise is acceptable? How many Pacific islands can we allow to disappear? How many species do we want to survive? Beyond what threshold should ocean acidification or toxic spills be declared intolerable? While scientists can shed light on these questions, the answers are necessarily political. In the age of anthropogenesis, the functioning of the Earth becomes a political affair. No nation can meet these global challenges in isolation. International cooperation is essential, and we've seen it begin to take shape in fits and starts.

One notable starting point was the third United Nations Conference on the Human Environment (“Earth Summit”) in Rio de Janeiro in 1992, at which the United Nations Framework Convention on Climate Change (UNFCCC) was adopted. Since adoption of this framework “*Conferences of the Parties*” (COPs) have met every year since, in different cities to discuss on-going losses and threats as well as looking ahead for strategies and metrics for tracking progress made in limiting global warming and biodiversity loss. Progress is slow, of course due to multiple conflicts of interest, nationalism and the lobbyists focused on interests of major international companies, particularly those involved in the extraction (mining and energy).

Yet, the COPs have achieved some tangible results, mobilizing civil society and raising public awareness. Nevertheless, we have the impression that international cooperation, with all its red tape, is engaged in a very slow paced race. Global conferences often give the impression of operating in a vacuum, disconnected from the reality on the ground and from the increasingly pressing expectations of an increasingly anxious civil society. At regional and national level, the same procrastination exists. Agricultural lobbies have succeeded in rolling back the objectives of the Green Pact for Europe, or in calling into question the decisions taken in France following the Citizens' Climate Convention.

In this issue, we describe the gradual awakening to ecological issues and the slow program on actions taken at national and international level. Above all, we wanted to give a voice to the promoters of citizen and civil society organization initiatives that are leading the way. In those spaces in particular collective intelligence is needed to raise awareness and generate innovative solutions. It's a democratic dynamic that needs to take shape such that lobbyists are pressured to inform decisions favoring the future.

Philippe Eyraud, professor of management science at IAE Paris-Sorbonne, wrote in a recent article for Le Monde: “*How can we break this deadlock? As the results of the work of the Citizens' Climate Convention have shown (with little follow-up in terms of legislation), ordinary citizens have an important, and underestimated capacity to drive ahead new ideas likely to improve the lives of all. In fact, numerous citizen initiatives in favor of the ecological transition are developing, albeit quietly, across the France and beyond. If the State is to stop acting just from above, far removed from the field, an interesting approach would be for it to give more attention and support to these movements, by making them widely known and, where appropriate, by helping them to expand.* “

This is the field we have chosen, that of cooperative approaches.

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POLITICAL ANALYSIS

How the Dems gambled the future climate with woke mindset and lost everything

By Larry CHILDS

Why did they think that moderate, middle class white and blue collar workers, without whom elections are lost, would go for a party obsessed with an identity orthodoxy?

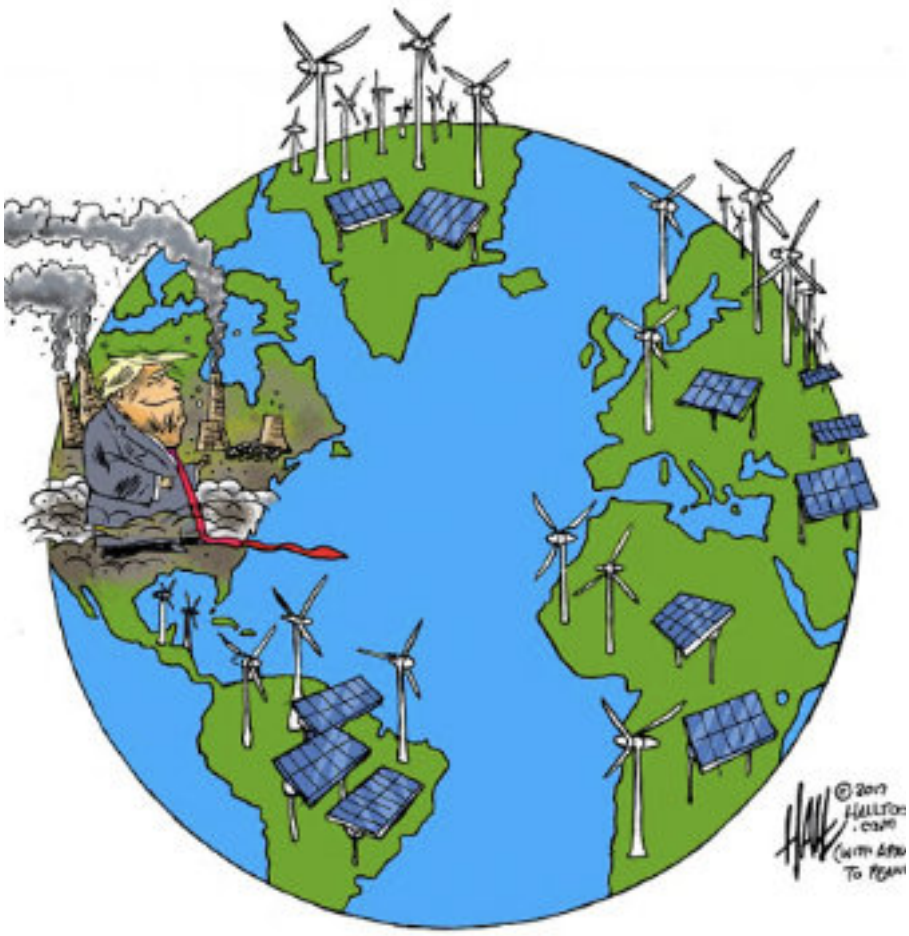
Placing allegiance to gender fluidity, pronouns and neo-marxist critical theory[1] as a litmus test for belonging was crazy. Why did they do it? That is a really good and important question which must be grappled with to mount an effective midterm election strategy, but meanwhile consequences of the electoral losses are ever-present and dire.

President Trump, like Daenerys Targaryen in the Game of Thrones, has risen from the ashes against the odds, amassed an army of fidel minions in just a few years, and gone mad with rage. Not dissimilar from Daenerys' massive dragon, Trump has mounted an engorged star-linked Musk and started to burn down the Kingdom, as much out of spite and vengeance as twisted rationale.

Meanwhile those in congress with the authority to slow him quiver with fear, refusing to reclaim their constitutional authority. Afterall they know with certainty such an act of courage would only divert his wrath (lasers, fire, silly mean words, whatever...) for the mere few minutes diversion required to smear their name, smite out their career, assure party banishment, and likely endanger their entire family by stoking the particular brand of MAGA mob wrath reserved for 'traitors'. Let us not forget the January 6th insurrectionist chant, '*Hang Mike Pence*'!

While the immediate carnage is tragic and alarming – consider the anticipated suffering and loss of life overseas due to emergency aid withheld, or at home where federal infrastructures are shattering, scientific research deleted, and the poor condemned to greater poverty – the longer term and far more

[1] Critical theory, the basis for critical race theory (CRT), is a political philosophy which critiques and aims to transform societal power dynamics and inequities.



consequential loss is our collective planetary natural environment and future.

Remember the environment? That 'thing' which has lost our collective attention in the mayhem but on which all life, including mammals like us, depends? I mention mammals because we all require a very specific atmospheric chemistry to breathe and, importantly, to reproduce.

The opportunity to cap carbon emissions and limit atmospheric CO_2 to survivable limits by the end of this century, many scientists point out with convincing evidence, was now, if not yesterday. Yet our government seems determined to not only halt, but reverse any regulatory policy or energy program even resembling 'sustainability'.

Sadly a critical mass of Americans either fell for Trump lies about climate on the one hand or were convinced in a centrality of social justice above all mentality on the other. Oooops.

Yet, science is relentless and real whether you believe in it, study it, decide to prioritize it, or not.

Last night as an elected member of our Regional School Committee, I attended a preliminary budget meeting for the year ahead. As there were some uncertainties about our current fiscal realities we voted to approve a conservative budget.

Though we are hopeful that some accounting forensics will surface money we think may be still buried hence available down the road, we are not counting on it. That would be irresponsible. Similarly, while it is possible that one day in the future scientists will invent atmospheric scrubbing technologies which could save our collective ass, choosing a 'drill baby drill slash and burn deregulate everything' agenda is anything but conservative.

I am an optimist, most of the time, but being one these days it is very hard with such dragons looming everywhere.

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CHALLENGES

Human impacts

Signs everywhere around the globe

At the United Nations, Tuesday, July 19, 2022, the President of the General Assembly, Abdullah Shahid, delegate of the Maldives, takes the floor during the debate entitled, Moment for Nature: "*We know that the situation is disastrous. I've seen it in my own country, the Maldives. Just recently, more than a third of the inhabited islands were hit by the swell - unexpected at this time of year - affecting lives, livelihoods, agriculture, soil and housing. Imagine, the sea rushes over your island, without warning, and your having nowhere to go... We know we're cornered because of our collective recklessness. We know it's only going to get worse, and faster, as we continue to delay the necessary actions... But it's not too late... We can still make a difference. .. Together, we have the know-how and resources to make lasting transformations; transformations that can lead us to a more resilient and prosperous world... This Assembly can facilitate partnerships within the global community on the scale of ambition required*".

For decades, the scientific community has been alerting the world to the environmental crises that are increasingly affecting us. Following the Earth Summit in Rio de Janeiro in 1992, the United Nations organized an annual "*Conference of the Parties*" (COP), as provided for in the "*United Nations Framework*

Convention on Climate Change" adopted in Rio to tackle the environmental crisis and climate change. The Kyoto Protocol and the Paris Agreement were negotiated during these conferences.

Ecological crises defined

An environmental or ecological crisis occurs when the living environment of one or more species or a population evolves in a way that is unfavorable to the survival of individuals. In ecology, an ecological or environmental crisis is defined as a perennial erosion of the biodiversity of a given ecosystem or species, the impact of which on the rest of the ecosystem under consideration permanently alters the resources within that ecosystem or the resilience of that species. Ecological crises are not a recent phenomenon. Geologists have documented multiple global crises leading to mass extinctions of species in the past. Human population genetics studies have shown that humanity came close to extinction 70,000 years ago in East Africa, when extreme droughts reduced the human population to around 2,000 individuals, probably divided into small groups. More recently, the arrival of the Great Plague around 1346, encouraged by maritime trade and urban development at the time, led to the disappearance of more than a third of Europe's population.

The Anthropocene

In the late 60s, discussions were held within the Organization for Economic Cooperation and Development (OECD) about the problems of modern society and an emerging global crisis. The Club of Rome was created, comprising mainly OECD staff, to introduce these ideas into the public consciousness. In 1972, the Club of Rome published its report, '*Limits to Growth*', also known as the '*Meadows Report*' because its main authors were ecologists Donella Meadows and Dennis Meadows. The report highlights the need to put an end to growth in order to save the global system from collapse, and to stabilize both economic activity and population growth. The Meadows report was followed up in November 2017, when 15,364 scientists launched the 'World Scientists' Warning to Humanity: A Second Notice', published in BioScience magazine. These scientists believe that there is a moral imperative to act in favor of the planet, based on a double observation: the failure to resolve environmental challenges and the worsening of these challenges. They note the failure to curb pollution and protect natural habitats, and stress the need to limit "intense material consumption".

In February 2000, Paul Crutzen, atmospheric chemist and Nobel Prize winner for his work on the ozone layer, coined the term Anthropocene. His idea was to add a new geological age after the Holocene, which began 11,500 years ago, to signal that the human species had become a force capable of shaking the planet. He proposed that this new age should be considered to have begun in 1784, the date of James Watt's patent for the steam engine, which symbolized the beginning of the Industrial Revolution:

"*The human footprint on the planetary environment has become so vast and intense that it rivals some previous great forces of nature in terms of its impact on the Earth systems*".

Compared with 1750, methane has increased by 150%, nitrous oxide by 63% and carbon dioxide by 43%. The concentration of the latter gas has risen from 280 parts per million (ppm) in the 18th century to 400 ppm in 2019, a level not seen for 3 million years. The consequences of this concentration are manifold: global warming and climate disorder. These gasses are known as "greenhouse gasses" because they trap the heat that the Earth, heated by the Sun, emits into space. The planet has already warmed by 0.8°C since the mid-19th century, and the Intergovernmental Panel on Climate Change (IPCC) predicts, depending on the policy response scenarios, between 1.2°C and 6°C more by the end of the 21st century. If current trends remain unchanged, we could be approaching +4°C to +5°C in the second half of the 21st century, bringing with it a whole host of climate disruptions. Advances in modeling show that even a small variation in global average temperature can lead to abrupt and disordered climate change.

Over-consumption of natural resources

The human race, which has grown from 900 million people in 1800 to 7 billion in 2012, appropriates almost a third of continental biomass production (for food, clothing, housing and entertainment) and consumes one and a half times what the planet can sustainably provide. Energy consumption - first coal, then hydrocarbons and uranium - increased by a factor of 40 between 1800 and 2000. Today, 83% of the planet's unglaciated land surface is under direct human influence, and 90% of photosynthesis on Earth takes place in ecological complexes developed by human beings. Collapse of biodiversity. Global warming, ocean acidification caused by rising CO2 , and the over-exploitation of natural resources are changing the conditions of life on Earth. As a result, the rate of species extinction is 1,000 times higher than the geological norm. Biologists speak of the “sixth extinction” since the appearance of life on Earth. The mass of humans (32%) and their domestic and farm animals (65%) accounts for 97% of total biomass, compared with just 3% for all wild vertebrate species. At these rates, 20% of the planet's species will have disappeared by 2030. As a result, several essential “services” provided to humanity by the biosphere - pollination, carbon capture, protection against erosion, regulation of water quality and quantity - will all be greatly reduced.

Planetary limits to change

Planetary limits are thresholds to change which, on a global scale, must not be exceeded if humanity is to continue living within a relatively safe ecosystem compatible with our biology and social instrastructures, i.e. one that is not susceptible to abrupt, non-linear, potentially catastrophic and difficult-to-predict environmental changes. The concept of planetary limits was defined in 2009 by an international team of 26 researchers, led by Johan Rockström of the Stockholm Resilience Centre and Will Steffen of the Australian National University, in an article published in the journals Nature and Ecology and Society.

12,000 years of stable conditions during the Holocene allowed humanity to develop. But human activities have developed to such an extent that they are directly affecting the planet's stability. Scientists have inventoried nine natural processes that guarantee stable living conditions, but which are impacted by human activities. For each, they have determined a tipping point at which the Earth system abruptly and often irreversibly changes its state of equilibrium. To ensure that conditions remain favorable to humans and life more broadly, scientists have established a threshold that must not be exceeded, which they call the planetary limit. It is defined such that uncertainty about a possible tipping point is a major characteristic, and to anticipate the time needed for humans to react and adapt:

- Climate change: Measured by the concentration of CO2 in the atmosphere which must not exceed 350 parts per million (ppm).
- Biodiversity erosion: Measured by genetic and functional biodiversity. For genetic biodiversity, the limit set is an extinction rate of ten species per million per year (the "normal" rate is around one species per million per year). However, the current global extinction rate is between one hundred and one thousand species per million per year. These extinctions have major impacts on ecosystems and on the functions no longer fulfilled by the species that have disappeared.
- Disruption of the biochemical cycles of nitrogen and phosphorus: For the former, we measure the fixation of nitrogen by industry and agriculture; for the latter, we measure the discharge of phosphorus into the oceans which must not be more than ten times greater than natural discharge.
- Changes in land use: Less than 15% of the available land surface must be cultivated.

The introduction of new entities or substances into the environment (heavy metals, synthetic organic compounds, radioactive compounds) that cause pollution. The limit is reached when the annual production and discharge of new substances exceeds the company's capacity to assess and monitor them.

Freshwater consumption: The limit is set at less than 4,000 km3/year of runoff consumption (blue water).

Ocean acidification: This is the measurement of aragonite (a calcium carbonate produced by marine organisms to build their shells or calcareous skeletons) in surface waters. It serves as an indicator of ocean acidity.

Atmospheric aerosol concentration: The limit has not yet been quantified on a global scale, but the authors stress that the interactions between these limits (possible synergies) are not well understood and may have negative impacts.

The concept of "planetary limits" makes it possible to define the planetary playing field within which humanity can live safely (in terms of the sustainability of natural resources and ecosystem services).In 2023, six of the nine limits are considered to have been exceeded. When the first article was published in 2009, the authors of the study warned that three limits had been exceeded: climate change, biodiversity erosion and disruption of the biochemical cycles of nitrogen and phosphorus. In 2015, it was the turn of the phosphate discharge limit to be exceeded. In 2022, the freshwater threshold was crossed.

Man and nature

Lynn Townsend White, a medieval historian specializing in the history of technology, published an article in the American magazine "Science" in 1967 entitled "*The historical roots of our ecological crisis*", in which he argues that the ecological crisis was made possible by the emergence, during the European Middle Ages, of an interpretation of Christianity that made it "*the most anthropocentric religion the world has ever known*". It is based on certain verses of the Bible that place man above nature. It says that "*God created man in his own image*" and tells him to "*Be fruitful and multiply, fill the*

earth and subdue it. Be rulers over the fish of the sea, the birds of the air, and all the animals that come and go on the Earth. " The Western worldview pits nature against man and human works, in other words, nature against culture. In other societies, particularly those of primitive peoples, this concept does not exist, as plants and animals are included in the global sphere of which they themselves are a part.

Humanity denatured

In the 17th century, René Descartes asserted a fundamental difference between mind and body, between man, endowed with reason, and the animal, which lacks it. Man thinks ("*I think, therefore I am*"), animals are machines. They belong to nature, while man belongs to civilization. Descartes considers each of these elements separately: mind, body, society, nature. He takes no account of their interrelationships. It's a dualistic philosophy. Descartes is seen as the first thinker of modern science, the first philosopher of technology. In his Discourse on Method, he predicts that science will enable man to master Nature:

"*... It is possible to arrive at knowledge that is highly useful to life, and that instead of this speculative philosophy, which is taught in schools, we can find a practical one, by which knowing the force and actions of fire, water, air, the stars, the heavens and all the other bodies that surround us, as distinctly as we know the various trades of our craftsmen, we could employ them in the same way for all the uses to which they are suited and thus make ourselves as masters and possessors of nature. ..*"

Anthropocene or Capitalocene

For Jason W. Moore this thinking is at the root of today's environmental crisis. After 1492 and the "discovery" of America by Christopher Columbus, European empires and capitalism seized the territories of the "New World", where peoples in a "state of nature" could be subjugated because they were not considered "civilized".

"*Empires, capital and science collaborate in the most daring productivist revolutions in the history of class society. We could call this the 'plantation revolution', even if it also involved extraction, manufacturing and breeding... The wealth of the sugar king became the fuel of global accumulation in the 17th century and the foundation of capital formation that would enable the industrial revolution at the end of the following century.*"

Sugar monoculture, on the great plantations of the Caribbean, provoked an environmental crisis with the destruction of forests and soils, and an unprecedented social crisis with the genocide of indigenous peoples and the dramatic expansion of trans-atlantic of slavery. Westerners and Europeans conceptualized nature as a metaphysical device for distancing themselves from the world, which could then become a system of resources to be appropriated, what Jason W. Moore calls "cheap nature". For him, talk of the Anthropocene is a deception, as it amounts to placing responsibility for the environmental crisis on the whole of humanity: "*Anthropogenic: 'man-made'. We know this isn't true, says Moore.. We know that, when we want to defend the status quo, we almost always seek refuge in abstract generalities... The verdict is in...*"

For Moore, the real culprit is capitalism. The logic of "conquering nature" introduced at the end of the 15th century was to be amplified with the industrial revolution of the 18th century. The new means brought about by science and technology that considerably increased the capacity to extract and use fossil fuels, and thereby engender global warming.

The Concept of Nature

For Philippe Descola, nature doesn't exist; it's a concept, an abstraction.

"*It's a way of establishing a distance between humans and non-humans, which arose through a series of processes, successive decantations of the encounter between Greek philosophy and the transcendence of monotheisms, and which took its definitive form with the scientific revolution*".

Yet 'the flows of life, human and extra-human, are linked and interwoven'. Planetary life is a web of interdependence at every level. When we consider human organizations as an integral part of nature," explains Jason W. Moore, 'it becomes possible to explore the multiple socio-ecological connections that make us specifically human: agroecology, disease, climate, hydrology, microbiome, non-human animals, etc. Even today, we still refer to the Amazon as a 'virgin forest"! But, as Philippe Descola reminds us, "the practice of slash-and-burn horticulture and the domestication of plants by Amerindians over the past 12,000 years have profoundly transformed the plant material and floristic composition of the forest.... So nature as a virgin space makes no sense."

In fact, man is part of an ecosystem like all other living beings. We're made up of the same elements as plants and other animals: stardust made up of atoms of oxygen, hydrogen, nitrogen and so on. We are part of nature, just as nature is part of us.

The Earth system

From the concept of the Anthropocene onwards, scientists present the Earth as a "complex system comparable to a vast, self-

regulating cybernetic machine (which, however, could be brutally deviated from its trajectory by human forcing)".1788's James Hutton, in his book "Theory of the Earth", saw the globe as a machine with its parts, mechanical principles and functions. After the Second World War, the invention of cybernetics and general systems theory played a decisive role in the emergence of a new relationship to the Earth as a "system".

The Gaia hypothesis

In 1974, James Lovelock formulated the famous "Gaia hypothesis". After taking part in a NASA project to identify criteria for detecting the possible presence of life on other planets, he wondered why living beings had inhabited planet Earth for so long. He formulates the hypothesis that this habitability was also produced by the action of living beings themselves. For example, blue-green algae or "cyanobacteria", the first living beings to engage in photosynthesis, fixed atmospheric carbon, which accumulated as sediments on the ocean floor and released oxygen into the atmosphere, enabling the formation of the ozone layer, protecting the planet from highly mutagenic ultraviolet rays and enabling the subsequent appearance of animals. Algae and plants influence the biogeochemical cycles that enable different life forms to sustain themselves. In recent years, scientists have confirmed the existence of feedback loops between the living world and essential parameters of the Earth system.

A global system including all living beings

In 1968, UNESCO defined the "biosphere" as "a system of living matter and substance... extremely complex, multiple, planetary, thermodynamically open and self-regulating, accumulating and redistributing immense sources of energy".This conception of the environment as a global system including all living beings breaks with the old idea of humanity versus nature. Among other things, it enables us to grasp the various "services" that biodiversity provides to mankind, and why it is absolutely essential to preserve it.

Editors note

At this current advanced stage of biosphere deterioration in late 2024, the essential question is whether humanity can and will take actions required to restore conditions for maintenance of healthy planetary biodiversity, and those specifically inclusive of mammals such as humans. This latter specification is one that many of us who take pride in and believe our creative essence as worthy, are rather attached!

PROTECTING BIODIVERSITY

The «Ligue pour la protection des oiseaux»

Hello Ms. DEJEAN, thank you for agreeing to this interview. You're the director of the Ligue de Protection des Oiseaux (LPO), delegation for Savoie and Haute-Savoie, in the Auvergne-Rhône-Alpes region, in the heart of the French Alps. Could you introduce us to the LPO?

The LPO[1] is a national association with departmental or regional delegations constituted as autonomous associations. Each association has its own funds, its own priorities, even if there is, of course, a global strategy passed down from LPO France to its local associations. The LPO, as its name suggests, initially focused on the protection of birds, but later extended its action to other species such as amphibians and reptiles...

If you want to protect species and the environments in which they live, you can't just work on birds alone. Everything is linked in an ecosystem. If we focus solely on birds, we run

[1] LPO stands for «Ligue de Protection des Oiseaux». In English: League for the Protection of Birds

Rock Ptarmigan

the risk of creating imbalances with regard to other species of fauna and even flora. So it became evidence that we must attend to other species as well. That's why we've added the phrase “Acting for biodiversity” to the LPO logo. This explains why, today, the LPO is no longer concerned only with birds, but more broadly with terrestrial vertebrate fauna. And when it comes to other species, such as insects or marine mammals, local LPOs, depending on the specific features of their territory, work with partners from other associations specializing in these categories.

Can we say that the loss of biodiversity is the major problem of the current ecological crisis,, along with the climate crisis?

Yes, yes, completely. There are a whole host of challenges, or threats to ecosystems and species. In Auvergne-Rhône-Alpes, they're the same as everywhere else: pollution, over-exploitation of resources, fragmentation of natural habitats, soil erosion, chemical run-off, etc, all of which are exacerbated by climate change. These threats are more or less direct consequences of human activities, with, of course, local specificities. Preserving biodiversity in mountain environments is a matter of particular concern to us. In fact, it cuts across many issues, some of them very cross-cutting. Reduced snow cover, for example, is a major problem for certain species. In the Alpine regions, part of the tourism and economic activity is based on the practice of nature sports, and this raises, among other issues, the question of water resource management. How long are we going to continue building large water retention basins to create artificial snow at all costs? Concern for biodiversity is often a bit of a “last wheel on the wagon”, so to speak.

Could you describe one of your activities in this field to illustrate your point?

Yes, for example, we're working with scientific researchers on a bioacoustics program for the Rock Ptarmigan. Also known as the snow partridge, white in winter, it lives at very high altitudes on scree slopes, yet their range is shrinking as the snow cover recedes. Because of their high-altitude habitat and harsh winter

conditions, these animals are very difficult to track. We have therefore developed an innovative program to improve our knowledge of species distribution by installing beacons that record the songs of ptarmigan. By recording their songs, we are able to identify individual males and say, at least on a seasonal scale, “that male is in such and such a place”. Over time, this gives us an idea of the distribution of these birds and their breeding territories. From there, we can make mountain users aware of the need to take precautions. We can say, for example, that in this very particular period of the breeding cycle, when this species is particularly fragile and the future of its population is at stake, it is preferable to limit human activities on this territory. If sportsmen and women have planned hikes, or even, for some, mountain competitions on routes that cross areas where ptarmigan breed, we enter into discussions with them so that they agree to modify their course and behaviors.

Just a little clarification: how do you distinguish each individual by its song? Is it a question of wavelength?

Yes, when we record vocals, we can translate them visually by curves that are very different from one individual to another.

It's like the human voice then?

Exactly. These techniques allow us to save a little time and ensure the safety of our teams, because instead of going into the field, at high altitude, in winter conditions, we simply place beacons from March onwards. However, not just anyone can do this. We have skilled technicians who get around on snowshoes or cross-country skis, with a good feel for the terrain, so that it's done safely. We have equipment with long-lasting batteries that enable us to record songs over a long period then simply pick up devices at the end of the season. Looking at the song curves on our computers allows us to identify particular individuals in particular locations.

It's exciting because it's quite innovative. We work closely with the research community on projects that are both ambitious and extremely interesting.

Technicians from the LPO install equipment to record the song of the Rock Ptarmigan

How do you identify threats to biodiversity conservation?

Our starting point is based on findings from the scientific research. When we are told “wetlands are disappearing”, we are interested in species whose habitats have been identified and listed in wetlands.

We also receive requests from the State, via the regional environmental departments, to carry out inventories at fairly regular intervals, for example between 5 and 10 years depending on the program. Recently we updated all the “*natural zones of ecological, faunistic and floristic interest*”. This takes two or three years, because it's a lot of work. A key question is whether the species we identified 10 years ago are still present, and in what numbers...

Some programs are commissioned by the State, but on a more local scale, they may be commissioned by the region or by local communities. In a way, we're the local experts with a large number of observers in the field,

salaried teams and many volunteers (13,000 members in the region) who contribute to our databases. The LPO in Auvergne-Rhône-Alpes, has collected over 30 million naturalist data points across our sites. So it's a phenomenal wealth, and it also enables us to have an expertise, a vision on the state of biodiversity, and confidence in the necessity to recommend vigilance: “Ten years ago, we observed ten individuals of this species, but today we only have 2, what's going on?”

Thanks to this historical knowledge on our territories by our local observers, members and volunteers we have developed a strong state of biodiversity monitoring and alert notification capacity. Such experience and systems is also shared throughout the LPO network, all over France.

Don't you feel that we are still scarred by an old ‘Western civilization’ mentality which separates man from nature? I've just read a very interesting book entitled “ Last Childs in the Woods”, in which the author observes how many young Americans - and I think this is happening in France too - have on the one hand never been so aware of the environmental crisis but at the same time are increasingly cut off from nature.

Yes, that's true. At the same time, we understand the importance of a number of support strategies, in which the LPO is actively involved, aimed at reconnecting young people with nature. There is, for example, a program set up by the French Office for Biodiversity called “aires terrestres éducatives” (educational land areas). These are small-scale areas (urban parks, wastelands, wetlands, forests, rivers, etc.) that become the setting for an educational project on environmental knowledge and preservation targeting elementary through high school students, their teachers and their outside experts (an environmental educator or institution such as the LPO).

Young people can discover biodiversity, carry out inventories to identify and learn to recognize the species that are present and think collectively about what they could do to

Outdoors school

preserve both the environments in which they work and the species that frequent these habitats. This is very much in line with the values of the LPO, which in terms of environmental education, favors a sensitive approach to the relationship with nature, based on emotional connection as well as science. In Auvergne-Rhône-Alpes, we're working hard to set up these educational land areas in conjunction with local authorities and schools..

Is this what we call “Outside or Outdoors school”?

No, Outdoors school is something else. I was going to tell you about it too. The Outdoors School allows students to connect with nature, improve their physical and mental health, and discover new ways of learning. It enables them to develop a stronger bond with the environment around them. This method is particularly useful for subjects such as science, geography and history, as students can discover concepts in a concrete way by exploring their environment. Finally, students discover new ways of learning. This can motivate them

further and help them retain knowledge more effectively. Activities can vary according to the subjects taught and the educational objectives, but they can include outdoor games, activities to discover flora and fauna, observation outings and so on. We find that there are many benefits in terms of learning and also improved physical and mental health of the students who take advantage of these outdoor activities and, once again, make a connection with the environment close to them. Our activity leaders are trained to support teachers and help them integrate nature into their classroom learning.

I'd love to hear about your efforts to encourage people to create small biodiversity protection zones in their own homes and properties.

Yes, we're talking about the LPO refuges. This is an initiative that dates back to the association's origins. The aim is to raise awareness and mobilize individuals, as well as companies and local authorities, to transform areas into LPO refuges. There's no minimum surface area, it can be a small garden of a few square meters, a courtyard, even a balcony. We propose an “LPO refuges charter” with some fifteen very simple gestures to be respected to encourage biodiversity and set up conditions that are conducive to the life of the soil, wild flora and fauna, by protecting this refuge space from pollution of any kind, and by setting up maintenance and management practices with minimal impact on the environment. Today, in Auvergne-Rhône-Alpes, we have some 8,000 LPO refuges, representing 11,000 hectares of biodiversity preservation. We work with companies, municipalities, retirement homes, hospitals and, of course, schools, to set up these refuges, and we support them over the long term, in particular with our volunteers, to give them suggestions for maintaining the sites such as planting hedges, installing nesting boxes, limiting lawn mowing, creating corridors to facilitate wildlife movement, etc.

What is your policy towards nature users - hikers, sports enthusiasts, mountaineers - to persuade them to adopt attitudes and behaviors that help maintain biodiversity?

Outdoors school

There's a craze these days, especially in our Alpine territories, for sporting activities in natural environments. This reflects people's need to reconnect with nature. A recent study showed that three out of four French people participate in outdoor sports and leisure activities in one way or another and often during their vacations. The problem is that, after a while, these activities can have a negative impact in terms of disturbing natural environments and wildlife. In our discussions with the various federations, we realized that people were keen not to ‘do just anything’, but lacked information on how to limit their impact on the natural environment. Not so long ago, even at the LPO, we tended to adopt a “don't tell anyone about our data” approach, for example concerning the nesting of birds of prey on cliffs. We quickly realized that we couldn't disseminate information in the same way or in the same format to paragliders, climbers, kayakers or potholers. That's the whole point of dialogue and consultation with these audiences

Installing a nesting box

to find out how to give them access to information without forcing them to go to our naturalist sites, which they don't know or don't frequent, but conversely to bring this naturalist information to the platforms which they can consult when establishing a hiking or climbing route, and so on. As a result, we've put a whole flow of information on different sites (*Visorando, Camptocamp, Geotrk, Skitour*, etc.) to provide recommendations on zones or periods of sensitivity in relation to certain species. Sports enthusiasts can log on to these sites, download the Biodiv'sports app and activate the "nature-sensitive areas" filter to identify sensitive areas and find information on over 20 species. They know that in a given area, from March to August, this or that cliff should be avoided, so as not to disturb the golden eagle that nests there. And if you're paragliding, don't go within 250 metres of it.

In this way, users are made aware of the frequentation of the sites by wild species, and of the risks they run if disturbed. During the brooding period, for example, a female may leave the nest, leading to predation of the eggs and total failure of reproduction.

Or, when the chicks have already fledged, a paraglider flying too close may frighten them, causing them to leap to escape, even though they are not yet capable of flight and will fall to the bottom of the cliff.

Today, 800 sensitive areas have been identified in consultation with local stakeholders and are published on these sport platforms. We have real duos of naturalists and sportsmen who go out into the field to assess the situation, observe the nesting of different species, and alert each other to the risks of disturbance. Climbers warn us when a golden eagle has moved to nest on a particular cliff. That's when you realize that you've really gained something, because you're feeding off the interest and sensitivity of certain types of public and nature users to preserve this or that natural area.

Thank you very much, Madame Dejean, for this rich interview, which sheds so much light on the eminent role played by the LPO in maintaining biodiversity in France.

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A CONTRIBUTION FROM RESEARCH

Sport and the experience of nature

Exploring intersections with conservation biology

Hello Madame Prévot. Thank you for agreeing to this interview. Could you first introduce yourself to our readers?

Of course, I'm a research director at the CNRS in a laboratory at the Muséum national d'histoire naturelle or Natural History Museum, also referred to as CESCO, Centre d'écologie et des sciences de la conservation. Conservation ecology is a discipline that derives from biology. It studies the management and preservation of natural resources and biodiversity. Our research generally examines current functions and dynamics in the context of evolutionary history.

In particular, we study the relationships between individuals of the same species, across species, and with living environments. Since 1985 members of the international ecologists community have mobilized around issues of biodiversity and conservation, and gradually created a discipline called 'conservation biology', which now has its own learned society and journals. Conservation biology, a field to which I consider myself to belong, was founded

as a crisis discipline, recognizing the responsibility of human societies to address a biodiversity crisis, and proposing that we mobilize our knowledge and research to provide ideas, solutions and avenues towards resolution.

As an example of our work I'll tell you about how, 20 years ago, I was working on a research

project concerning the impact of Florida tortoises. These are an introduced species bought as pets when young and then often released back into the wild once grown. The presence of these turtles in nature has raised questions about biodiversity conservation in aquatic environments. In addition to studying their impact, I became interested in how they were viewed by humans and why people released them. It was at this point that I reoriented my research so as to interface directly with the social sciences, and in particular with social psychology and conservation psychology, fields of research and action that are even more recent and less established than conservation biology, but which follow a similar path of inquiry. In this case, along with environmental psychologists, developmental psychologists, social and educational psychologists, we all arrived at the same intellectual reasoning, suggesting: “We have the intellectual and cognitive means to understand how the human mind works, let's try to understand why individuals act as they do when confronting these environmental crises - those of biodiversity, climate change, natural resources depletion, pollution, etc.”

Some currents in conservation psychology originated in Northern Europe and the United States, but others are developing in Spanish-speaking and southern countries. So I trained myself in this approach and now I work at the interface between the two so as to better understand the relationships that humans as individuals have with nearby non-human living things, what ecologists call ‘ordinary nature’, and to see how these relationships, what I call ‘experiences of nature’, enter into our imagination, first at the individual level and then at the collective level. The goal is to help us shape notions of the society we desire for the future.

But I'm still very interested in what nature is and how it works ecologically since that is where the difference lies. On the one hand, there's the community of psychologists and on the other social scientists who work on the relationships between individuals and human groups, and with nature. But for them, nature is a kind of black box, a backdrop. It can simply be a green space, a forest, anything, they often are lacking words to describe it. And then there are the ecologists who work on the functioning of nature and biodiversity in relation to human activities, but for them, conversely, humans and their activities are the black box. So I try to take both perspectives into account.

I recently read Richard Louv's, “Last Child in the Woods”. The author argues that children today are much more aware of the ecological crisis and the need to protect nature, but that at the same time they have less and less of a relationship with nature. He draws a direct link between the lack of nature in the lives of new generations - which he calls nature deficit - and some of the most worrying trends among children, such as

the rise in obesity, attention disorders and depression. Do you think that one of the reasons modern societies find it so difficult to make the decisions needed to resolve the ecological crisis lies in this existential disconnect with nature?

I haven't read Richard Louv's book in detail, but what you're saying reminds me almost word for word of something Robert Pyle, an American naturalist, wrote in 1980-90. Robert Pyle, an American naturalist and butterfly specialist whom I quote a lot. He observed that fewer and fewer adults and children had an intimate relationship with living things. He said that at the very moment when ecological knowledge is becoming increasingly important in our societies, we have less and less intimacy with living things. Though these intuitions are verified by many observations and facts, I don't know that we've lost all intimacy with living things, bearing in mind that the intimacy in question is multifaceted. While many facets of the natural world are disappearing, that does not mean we've lost intimacy all together, or even that we're modifying our relationship with nature. But my intuition suggests that, generation by generation we are changing our relationship with nature. They are becoming more and more virtual, or at any rate less and less embodied, in the sense that we're less and less in direct contact with the natural world. Does this mean we're becoming more distant from it? In concrete terms, of course. But intellectually? I think so, but I don't have sufficient data to back up this hypothesis even though there's a lot of information, well, a lot of signs, which show things aren't going very well, that our relationship with the living is loose, distant...

You're right, but, nevertheless, I have the impression that people of my generation, for example, when they were young, when they were children, teenagers, spent much more time in nature.

Yes, that's absolutely true. There are facts to prove it. Today's children spend far less time outdoors than previous generations. This is even true if we compare the situation with 20 or even 10 years ago. But where I'm cautious is that it's not clear that spending more time outdoors means we're more connected with nature. A lot of people say “In the countryside, people are more connected with nature because they spend more time outdoors”. This is not necessarily true. There's just as much diversity among rural people as urban ones. It all depends on what you mean by connected to nature. That's why I'm cautious, you see? But the fact is, spending time outdoors has many positive consequences, for children and adults alike. First and foremost, there are positive consequences for physical health, psychological health, social relationships, self-confidence, personal development and so on, all of which have nothing to do with protecting biodiversity, yet are fundamental. So it's very important to spend time outdoors.

I watched one of your Youtube videos about our relationship with nature. You talk specifically about experiencing nature, and I found that very interesting. Could you explain what you mean?

I didn't invent the term “experience of nature”; I think it was the famous Robert Pyle, who spoke of the “extinction of experience” (his 1993 article was translated in 2016 by M. Lefevre in the journal Ecologie et Politique). Since 2015 or so, the scientific community has taken up these ideas, but without much theorizing as yet: some researchers, for example, quantify the experience of nature in terms of the proximity of where we live to nature, with the underlying idea that if we live closer to nature, we go there, which is not true. Experiencing nature can be done in different ways. Physically visiting a national park is one though reading, video, etc. are others... With my team, we tried to further develop the concept in a paper published in 2017. So we propose the nature experience through a triptych: an individual, a nature space and a social collective. In this framework, the experience of nature is the encounter between an individual and one or more elements of nature and an encounter that has several dimensions: a cognitive, intellectual, knowledge dimension; an affective dimension, a sensory, bodily dimension, a memorial dimension, a

social dimension... These different dimensions depend on the individuals who experience them, depending in particular on their history, their knowledge, their uses, their practices... They will also vary according to the social group and in particular the social norms that define the “right” behaviors to adopt with regard to nature. This encounter will have consequences for the individual, but also potentially for the social group, as soon as we talk about it, and therefore also consequences for the natural environment, which we may or may not manage or take charge of.

So I think that whenever we talk about nature experiences, it's very important to keep these three elements in mind: the nature space, the individual and the social group and the social norms we accept. Moreover, these nature experiences can be direct, with real visual, olfactory or tactile contact; and they can also be virtual, through video games or films. A few years ago, one of my doctoral students and I carried out a study on players of World of Warcraft, an online video game. Around a hundred experienced players, who had access to the entire game space, answered a questionnaire. Many of them explained in their answers that their favorite regions of the game were explicitly green, full of nature, and that they went there to de-stress after a hard day's work. So this was a real example of how going to a virtual nature area can have a positive effect on well-being and help you to de-stress. We can call it a nature experience, according to our definition.

Obviously, for those of us in the field of ecology and conservation biology, it's a little surprising and even disturbing to encourage these virtual experiences. In the article I published with Susan Clayton and my team on this subject, we make clear the importance of defining the objectives we set ourselves when we want to offer a nature experience. If the objective is to increase people's well-being, de-stress them, make them feel good, etc., the nature space to be provided, in the city or elsewhere, will not be the same as if the objective is to protect biodiversity. Indeed, a green space with a well-mown lawn and a few small, well-trimmed shrubs may be good for de-stressing, but it's not

very good for biodiversity. On the other hand, an unmanaged forest, with lots of plants growing all over the place, isn't necessarily going to do people any good, at least in the social system and social standards of Western Europe, but it's very good for biodiversity. It's clear how important it is to bear in mind the triptych “individual-nature-space-social group” whenever we talk about experiencing nature.

If I understand correctly, we can therefore study the impact of nature immersion on the individual's well-being, on the one hand, and on changing social norms including motivation to protect the environment or biodiversity specifically on the other. Is that right?

Yes, in my opinion the two are not incompatible, but it's important to keep both in mind and to be able to spell out the objective you're pursuing.

Do you think we could go so far as to specify the characteristics of the experience which would favor one or other of the objectives?

Yes, it should be possible. But as far as I know, it hasn't yet been done.

It's something I've kept in mind because I've often noticed the absence of a clear educational objective in the nature experiences offered to young people. Scouting, for example, has mobilized thousands of young people in tree-planting projects to combat desertification or clean up rivers. But we didn't often explain to young people what was at stake. It was the action that was targeted, but not the why.

This situation is very common: we rarely, make the objectives of our actions explicit. Either because we forget, or because we think it's implicit and that everyone knows, when it's not the case. On the other hand, what also seems very important to me - or at least that's what I advocate - is accepting the diversity of individuals, especially the fact that some people won't like a nature experience at all. At the moment, there's a lot of social pressure to accept the idea that nature is good for you, that you need to get out there to reconnect, that everyone's talking about. But for some people, it's a form of violence to go into a natural space, they really don't like it at all. And so, to continue to advocate for something as almost compulsory, because it would do so much good, can actually exclude people for whom it isn’t at all beneficial. The point I'm making is that there is a wide diversity of relationships with nature, of desires to go there and of ways of connecting with nature, including “I don't feel like connecting”. But I find that for many, the fear or lack of desire to go into nature is linked to a lack of knowledge - they've just never tried it. So I think it's better to make nature experiences accessible for everyone, and then suggest to people that they really go and conscientize their relationship with nature. After that, everyone forms their own opinion, their own position, and all positions have legitimacy.

Absolutely, I spoke with Guillaume Legault, the director of UCPA, an organization that offers a wide range of outdoor activities: skiing, climbing, hiking, sailing, etc. He told me that they intensify and design their experiences in nature, such that the aim of a given activity is not just to achieve a sporting feat, but to allow one time to enjoy themselves...to take the time to look, see and feel the living, natural world around us. In your research, have you addressed this question: how to deepen experiences with nature?

I haven't worked directly on this issue. But four or five years ago, I sent a group of Master's students to a UCPA center in the mountains in January. There were around ten of them, and they were asked to analyze how a winter sports holiday offered by UCPA in the mountains was a natural experience. They saw that physical activity was paramount: we arrived at the top of the slopes, took a photo and launched ourselves down the slope. The students then presented their observations to the UCPA managers, who received and accepted our conclusions: “You presented this activity as a nature experience, but in fact, according to our scientific criteria, it really isn’t.” A year or two ago, UCPA asked me to be part of a steering committee for a new internal mission, to support an ecological

adaptation of their activities..

There's another point I'd like to raise with you, the self-discovery that experiences in nature can foster...

Now, I haven't theorized about this at all, but in our theoretical model, for certain people, and at certain times, the experience of nature can help us to look inward. It can be an opportunity to take stock of oneself and better situate one's place in the world, that's clear. But then again, for some people it's never going to be that way. In this inward looking dimension, some people talk about spirituality, others about religion, and others about meditation. My aim is to encourage these experiences of nature on every possible level. I'm seeking to detail the conditions that are possible, both in terms of the diversity of natural spaces, the psychology of individuals, and even sociology and social norms. The aim is to enlighten political and economic decision-makers so they can put the necessary conditions in place for increased experiences in nature.

First and foremost, this means opening up natural spaces close to where people live, i.e. places where ordinary biodiversity exists. It also means restoring the regulatory authorization for access, so to stop closing urban parks to the public, for example, but also restoring the social permission to go there, by ensuring that everyone feels welcome, which is not necessarily the case. And then, once all the prerequisites have been met, it's up to individuals to take responsibility for experiencing nature, in other words, to change their priorities. Some people say: “I can't go into nature because I don't have the time...”. From my point of view, “I don't have the time” means it's not my priority. We're back to the “individual-nature-social” triptych. Putting nature spaces back close to where people live is the social level of the triptych. The type of nature space favored is also a social decision, depending on the objectives.

In my view, if you can install and maintain well-mown lawns, you can also restore space where vegetation is freer, even in cities. We may not get the same results in terms of sensitive and aesthetic experience, as we may in terms of biodiversity and conservation. I'm anticipating that this can change our relationship with nature, but also with others and in the way our societies function which is currently headed for a social, political and ecological wall. To predict that reconnecting individuals with nature will change relations between humans, I draw on the work of environmental philosophers and environmental ethicists, who speak of relational values: we value biodiversity according to the relations we have with it, and according to the relations we have with other humans about it. So I think nature experiences will change these relationships. I don't know how precisely, but we have to try, because we can't remain in the current situation.

There seems to be a feeling among the general public that ecology imposes too many constraints such that people are talking more and more about “punitive ecology”. If I understand correctly, do you think that multiplying nature experiences for young people and adults can help correct this tendency?

Yes. So I'm not just talking about ordinary people. I'm also talking about politicians and business leaders. I'm not saying that we need to correct trends, I'm just saying that this will undoubtedly change priorities with regard to what we individually and collectively consider a good quality of life. I'm referring here to the work and summaries produced in 2019 by the IPBES, the biodiversity equivalent of the IPCC. In this report, they published their conceptual framework, which explicitly links good ecological quality of biodiversity, or nature, i.e. good ecological functioning of living things, with good quality of life for humans. If one doesn't work, the other won't. These proposals are based on the work of scientists from over 130 countries. What they call good quality of life is based on 18 dimensions, the best-known of which are having a home, enough to eat and drink, being in good health, having enough income to live on... But there are also less tangible dimensions, notably freedom of choice, leisure, gender equality, non-discrimination... And the 18th dimension is access to a natural

space. All these quality of life dimensions are not necessarily at the same level of priority, depending on individuals, social norms and societies. I'm thinking that having experiences of nature will enable us to re-prioritize these 18 dimensions and thus improve well-being while lowering our carbon footprint.

It's a bit like the idea of "happy sobriety"...

I don't use those words.

Why don't you use those words?

You see, I live in a very small village, in an area that has lost a lot of shops, public services, health and care systems and so on. Some people who have lived here all their lives are angry, or disillusioned, about this, and I agree with them. But these are the same people who can also tell me: "No, but we'd never change where we live... we're very happy here, we're quiet, we're peaceful, we can go for walks in the forest all the time, we can hear the birds and all that...". Being able to go for a walk without locking your door to listen to the birds can be a source of good quality of life. But I don't know how much these activities are socially valued, and how much they are thought of as contributing to good quality of life in these places. Once again, we come back to this triptych. Social norms have an extremely important effect on what we think as individuals.

Do you also address educational issues in your research? In my experience, I'm increasingly of the opinion that educational objectives should be posed in terms of relationships. That is to say, human development, the development of the individual, must be posed in terms of harmonious relationships, with others, with nature, with oneself, with knowledge, and so on. I don't know about you, does this sound familiar?

I work in a laboratory where a number of people run participatory science programs on biodiversity, called Vigie Nature, and in particular at school, i.e. Vigie Nature-école, which offers teachers the opportunity to set up, on school premises or right next door, structures for monitoring ordinary biodiversity

with their students (birds, earthworms, plants, etc.) and to take part in the collection of scientific data. In a European program in which we were taking part, a contract researcher had worked on what was happening to the elementary school, collège and lycée children involved in these observatories. She showed that these children and teenagers not only increased their knowledge, but also changed their relationship to the species observed through sensory and emotional experiences. During the proposed activities, what did they like, what did they dislike, what were they afraid of, what were they not afraid of? Did it make them proud or not? For primary school children observing earthworms, it's a bit different the first time than the second. They become very proud when they are able to hold them in their hands, know the names of the different body parts and distinguish the species, etc. These are all opportunities to experience the world of earthworms. These are opportunities to experience nature, mediated by an adult's primary goal of acquiring knowledge. Even with this precise objective, young people have richer experiences, provided they are given a little time and attention.

I know of other initiatives in educational contexts; for example, those set up two or three years ago in France by the “Classe dehors” collective, which encourages teachers, during school time, to organize activities outside the classroom for at least half a day a week, in all weather, and without a defined program, leaving children free to play. Most of the teachers who set this up are primary school teachers, but I've also heard from a high school. Children and adults who have the chance to experience these moments change a lot in themselves, and not just in their relationship with nature. Numerous testimonials from practitioners, as well as scientific studies, show that a group of young people, for example, start by running around at the beginning of this free time outdoors. But soon enough, they calm down, get organized, settle down to observe one phenomenon or another on their own or in small groups... They stop shouting, they become more concentrated, they cooperate. All this without the adult's direct supervision, or at least with a distanced gaze.

And to get back to education, I'm starting a research-action project with Label Vie, an association of early childhood professionals, to co-construct with them a digital platform for exchanging nature activities with toddlers, to encourage professionals and parents to get children out and about. This is based on scientific data showing the importance of outdoor activities for very young people, but also for accompanying adults. We are developing associated research, which will study the effects of these nature experiences on children's cognitive (knowledge), sensitivity to, bodily and affective relationships with nature, but also on relationships between adults and children, and potentially on the biodiversity present in these nature spaces, if they are modified.

Mrs. Prévot, I'd like to thank you sincerely for agreeing to this interview, which has enabled us to discover the richness within the concept of nature experience at levels of the individual, social relations, the environment, conservation biology and educational systems.

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A GRASSROOTS INITIATIVE

Shared farms

A cooperative archipelago for farmers' emancipation

Céline Riolo is Co-General Manager of Fermes partagées (shared farms) and has been involved in the social and solidarity economy for 12 years. Specifically her focus is in the cooperative movement where she has worked as a coach and coordinator at a cooperative, and most recently in the promotion and development of small-scale farming initiatives.

Nicolas Gohier is one of the promoters of the "Clef des Sables", a polyculture collective farm of almost 50 hectares, bringing together several farmers on a daily basis to produce fruit, vegetables, nuts, aromatic and medicinal plants and cereals, flour, bread, oil, cheese and yoghurt. These products are all marketed by partner stores in the region.

Hello Céline, hello Nicolas, thank you for agreeing to talk to us about your "Fermes partagées" initiative. Could you first tell us how it came about?

Céline : In fact, this project was the meeting of two movements, two thoughts. On the one hand, there was reflection on the significance of local organic food production by GRAP, Groupement Régional pour une Alimentation de Proximité (Regional Group for Regional Food Production), a cooperative working in the Rhône-Alpes region. They have an entire network of grocery stores, processors, caterers, and restaurants.

On the other we reflected on ways to support this kind of resilient organic farming.The project was thus born out of the encounter between the social and solidarity economy and cooperative models in the agricultural sector, with the primary aim of providing long-term support to cooperative farms such that they may cope with any problems they might encounter.

Nicolas: After 7 years of rural veterinary practice I reactivated an old vision of mine, that of developing a farm based on the complementarity between animal husbandry and arboriculture. In my neighborhood, in Saint-Lattier, Isère, my neighbor was preparing for retirement and was looking for a buyer for his farm. With a few friends, I took over the farm in the form of a cooperative called "la clef des sables". I discovered that cooperative status was well-suited to managing the long period of time needed in agriculture to bring about the necessary changes. When we set up Clef des sables, we felt an intense frustration of being somewhat alone in our own corner, inventing and experimenting with things, without the possibility of sharing with others to learn from our mistakes and successes. That's why we decided to join "Fermes partagées".

The cooperative model has a long history in the agricultural world. What did you want to bring that's new?

Céline: Yes, the cooperative model has existed for a long time in the agricultural world. It really took off during the post-war agricultural revolution. The idea was to pool resources to facilitate the use of major technical developments and the marketing of products. There is a huge diversity of agricultural cooperatives, but now we're witnessing a degeneration of cooperatives as some have become behemoth farms where a dissolution of responsibility and farmers' power is evident. We realize they no longer serve farmers, but rather themselves. Our aim, on the contrary, is for farmers to reappropriate the tools of production.

Does the cooperative model provide a solution to problems left unresolved, such as the enormous amount of work farmers have to do in order to earn an often minimal income?

Nicolas: To answer this question, we need to remember that, at the end of the Second World War agriculture in France was family-based. We valued family transmission, from one generation to the next. The long term was still present which placed an enormous pressure on descendants as they were the only ones who could make the most of a lifetime's work. Solidarities were intra-family solidarities and

income was not recurrent; it was often established at the end of the career by increasing the value of the family farm when it was taken over by descendants or sold. This socio-economic system no longer corresponds to the reality of farmers' lives today. Farmers' heirs don't necessarily want to take over the farm, either because it's too small, or because it's too expensive for a young person to establish themself as a farmer.

The traditional approach of the farmer entrepreneur is one of “patrimonialization”. This sounds like: “I'm going to create an estate, and I'll use this estate to assure myself a pension, to rebound after my productive years as a farmer come to an end, and potentially to envisage passing it on to my heirs”. But this pattern no longer works. New French farmers want to get closer to a “normal” way of life, with social security, annual leave, retirement, and unemployment benefit

On the other hand, anyone wanting to set up as a farmer has to invest several hundred thousand euros, or even millions, to take over farms that have been enlarged, ultra-capitalized, and with farm incomes that have not changed. As a result, there's a clear imbalance.

How can you repay such loans with this level of income? All your income is going to have to go towards repaying the loans. And with each generation, we find ourselves stuck in the same cycle of debt.

The cooperative model, which we represent, breaks from this cycle. In other words, we're going to stop buying back capital with each new generation of associates, with each renewal of farmers on the farm, and instead use the margins (or sales) to ensure a decent income and proper social protection, thanks to the employee-associate status specific to cooperatives.

I also assume that the model you describe is one that locks farmers into a productivist model of agriculture. How do you feel about this? How does your cooperative model facilitate the move towards more environmentally-friendly agriculture?

Nicolas : For me, farmers are first and foremost people who do what they're told since financially, they depend on European Agricultural Policy, and specifically are obliged to repay loans. They do what they're told, even if they don't necessarily like it, because they're economically forced to do so. They are also sometimes constrained by tradition or habit: “We've always done it this way, we'll continue to do it this way”. But I'm convinced that paying close attention to our working conditions goes hand in hand with a greater respect for life and making the choice of organic farming.

Céline: To add to Nicolas's comments, what we see when we look at those who define themselves as a collective farm, which is the case of the Clé des sables farm, for example, is that they ask themselves the question: “How can we produce while respecting the environment, the living world?” They are also thinking about working relationships: “How do we get out of a pyramidal, hierarchical system where, on the one hand, there's a boss who defines what needs to be done and, on the other, employees who carry out the tasks?” How can

you create a collective without submitting to this type of operation? And how can we organize work collectively, based on mutual respect and support? In any case, all those who embrace this collective farm identity are united by a common intention to produce with the utmost respect for the environment, for living organisms, and for cooperative and mutual assistance. So they are almost all organic farmers, with agro-ecological practices, and in working relationships that exclude relationships of domination.

How is this shared farm initiative perceived in the farming community? Is it of interest to young farmers, for example?

Céline: It varies. In any case, we all agree that the current agricultural model is dysfunctional in terms of workload, low incomes and so on. And we are in a position to propose solutions to meet this challenge. The way in which these solutions are perceived has a lot to do with people's differing perspectives. Some will be interested in the new models we propose. Others will be rather dubious, while still others will dismiss it out of hand. Some will say that it's interesting and that it can complement everything that already exists. And then most have a very pragmatic side, i.e. if you prove the interest and operation of this type of farm, well, obviously, they accept.

Nicolas: I've noticed great interest in what we're experimenting with. The Chambers of Agriculture and state service, which officially represent the government, call on us at Fermes Partagées to test potential solutions. They're ready to listen to us, to enter into dialogue. At regional and departmental levels there are indeed people we can still talk to who are interested in our farmers' projects. And in the area, the fact that we're organized as a cooperative doesn't change much for them. They don't really realize what it means. They're just going about their daily lives. They see that we've built a new building, that we've brought in some cows. In fact, not many others have dared to bring in cows. We stand out from the crowd a

little bit, and therefore they're interested.

Do you notice any interest from young people in obtaining training?

Nicolas: Yes, certainly. They're aware that when you set up one or two operations, when you're specialized and there aren't many people on the farm, you have an extremely fragile system. All it takes is one human or climatic accident over a period of 2 or 3 years of production and your investment, with all the time and effort, can vanish. The current agricultural system, which is highly specialized, even with large farms relying on the efforts of one or two people, is not immune to impacts of a tractor accident, for example, making it very vulnerable. So, from a societal point of view, we have every interest in spreading the cooperative, collective model, to ensure a long life for production structures, because it's the only way to respond to the impacts of climate change, among others.

Does this lead to ecological optimization? I don't know. Does it give us a better chance of continuing to produce in the long term? Well, yes, that's for sure. And as a result, we have a little more latitude to make investments that are not always profitable in the short term. In that sense by having several people engaged in a cooperative format we've taken some of the financial pressure off.

How widespread is the shared farm model in France at present?

Céline: In our experience every year we support around twenty collective projects yet they don't all necessarily manage to become established as cooperatives because there are so many obstacles. Those that do manage to set up don't necessarily opt for a cooperative status because it doesn't currently give them access to all the state subsidies. However, given all the requests we receive, we do perceive a real grassroots movement and great interest on the part of collective groups wishing to move towards a cooperative solution.

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EDUCATION

Learning to live in harmony with nature

Interview with Laurine GUILLAND, General Delegate of Eclaireuses et Eclaireurs de la Nature.

Laurine, your association has chosen to include the word nature in its name. What is the significance of this choice?

For us, the word nature refers to a dual reality: on the one hand, nature outside with a capital N, and on the other, our own inner nature. Our educational project is designed to help each and every one of us shed light on our own nature, and at the same time enter into a relationship with the whole living world around us. In the teachings of Buddhism, dharma is something profoundly spiritual.

In other words, we're part of nature, and at the same time nature is within us?

Yes, in our modern society, human beings feel they have become totally independent and alienated from nature. Nature appears to us as an external world whose resources we can exploit at will. This is undoubtedly the origin of the current ecological crisis.

We believe we have become totally independent of nature. Food is available in supermarkets rather than in vegetables drawn from the earth. In cities, people go about their business, come rain or shine, snow or shine... We live in a bubble that isolates us from the natural environment. Humans have detached themselves from nature in order to dominate and domesticate

The fact that we exploit nature to meet a certain number of our needs isn't a bad thing in itself, but today's disconnection from nature is taking on enormous proportions, particularly through digital technology. In our modern society, inside our homes, we watch everything through the screens of our televisions, computers or smartphones. There's no longer any contact with reality. This takes us to extreme proportions of non-relation to nature.

You know, 30 years ago, the Scouts de France organized the first camps for young people from disadvantaged suburbs. And there were children as young as 10 years old who watched in amazement as water flowed from a spring or a waterfall, because for them, water came out of the tap.

I have similar examples of young people who, for example marvel at a starry sky, for example, because back home, in the city, they've never seen anything like it.

What nature experiences do you offer young people?

It's all about the experience of living in nature. Setting up a camp is really the basis of the Scout method.but, in fact, there are plenty of children who have never had the experience of living in the great outdoors, of sleeping in a tent, under the shelter of a simple canvas, of eating meals cooked over a wood fire, or even of being together in the company of friends and family. around an open fire, washing themselves with river water. This alone is a fabulous experience, reconnecting young people with nature and helping them discover that it's possible to live with fewer.things. And then there's a whole host of activities that give young people the chance to discover the wonders of nature: the night, the stars, the river, the mushrooms, the trees, the birds, insects, the abundance of biodiversity, to see all that is magnificent in nature, and then to learn to love it.

In our consumer society, advertising specifically aimed at young people is constantly trying to create new needs for them. That they can

actually be happy with less and accept a certain amount of discomfort as long as still meeting basic needs such as eating, drinking, protecting ourselves - that is somehow radical.

Yet there are other essential needs to be met in nature such as sheltering from rain or sun, connecting with friends, feeling peace in the face of a beautiful sunset... They develop a taste for nature and with it a desire to protect the natural environment.

From there, we try to gradually bring about an understanding, not just intellectual but based on experience and feeling, of the interdependencies in the fabric of life, the links between humans, flora and fauna, between ecosystems and climatic phenomena, and so on. The aim is to give young people the opportunity to experience the impermanence of the landscape they discover around them, the fragility of ecosystems in the face of threats posed by industrial exploitation, and to realize that perhaps, from one season to the next, trees die more easily, birds and insects disappear, streams dry up. They can then develop an intellectual understanding of the issues at stake and mount a desire to get involved in preserving the fabric of life.

So let me try to summarize what you're saying here. First of all, there's the wonder, the discovery of the fantastic beauty of nature, the amazement at natural phenomena and the experience that we have of all this. And there is also the realization that we can live well with fewer comforts, fewer possessions.

That's what it's all about. The 'happy sobriety' which Pierre Rabhi spoke to - to the discovery of relationship between nature and well-being. I feel good in nature, calmer, happier, because I find nature in and around me. In nature, there's much more activity related to the body, whereas in modern society, there's much more activity related to the mind. At EDLN, we have a spirituality based on listening to the body.

Yes, you also practice meditation in nature and offer young people mindfulness exercises. Can you tell me about that?

Meditation in nature is our identity. The mental health of young people is a recurring theme for us. How can we welcome and support young people suffering from depression, ADD, etc.? We offer them the opportunity to experience meditation, using the sounds and smells of nature to help them become aware of their

bodies and what's going on inside them. It's excellent training for the attention span and, above all they learn to know and recognize their sensations, especially their emotions, and understand that this is a compass towards inner peace.

AC - So, among the young people who have spent two, three or four years in your association, do you see any changes in their behavior, in their attitude towards others, nature, the world, etc.?

We don't have any empirical studies but judging by the experience of the young people in the older group, the 'Compagnons', I think they have developed a real critical eye for the consumer society and its artificial needs. They know where it is going and they're going, and through that wider awareness their better developed self-confidence is quite impressive. They ask themselves a lot of questions about their future professional life, their ecological impact and how they can play a useful role in society.

Have you equipped them with a compass of sorts to help them find their way in life?

That's what we talk about in our educational project: helping young people to build their own inner compass, so that they can identify the best path for themselves. When I see them able to ask themselves questions about society and their life choices, I tend to think we're succeeding in doing just that.

Thank you Laurine, and bon voyage!

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CITIZENS' INITIATIVE

TownGreen

A regional approach to climate change

By Maureen Aylward, Executive Director

TownGreen, Inc. is a 501(c)(3) nonprofit based in Gloucester, MA. Its mission is to be a catalyst in assisting the greater Cape Ann region become a vibrant and inclusive model of sustainability that is fossil fuel-free and better prepared for the impacts of climate change.

Regional vulnerability

The Cape Ann region of Massachusetts, comprising the coastal city and towns of Gloucester, Rockport, Manchester-by-the-Sea, and Essex, is already experiencing significant climate change impacts with harm to both natural and human systems. Climate change is rapidly shifting traditional weather patterns, making climate impacts more visible—extreme heat, drought, wildfires, flooding, storm surges, and sea level rise are becoming the norm. All have become more frequent and inevitable, resulting in a continuously evolving threat to local environments, ecosystems, habitats, and inhabitants. Examples in our region include the vulnerability of Cape Ann salt marshes that

Increasing frequency of street flooding is a vivid, visual reminder of climate change and its impacts.

protect us from storm surges while mitigating erosion on beaches with tidal estuaries with secondary impacts to our woodlands that support marine, bird, and wildlife populations.

Climate impacts threaten key infrastructure and public safety systems—from major utilities and evacuation routes in floodplains to drinking water risks from sea level rise, climate impacts threaten key infrastructure and public safety systems. Harvard University Prof. Charles Waldheim states, "Cape Ann's ecological restoration and climate adaptation strategies must be systemic, flexible, and community-driven. The strategies must also address the complex interplay of climate change, biodiversity, and social vulnerabilities as well as remain connected to global efforts for a sustainable future" (Waldheim 2024).

To face future climate change impacts and prepare for them, Cape Ann residents need community-based climate adaptation and resilience training that equips them with knowledge and skills to protect local environments and ecosystems while advancing their learning on climate change adaptation strategies. Climate adaptation and resilience means, "taking actions to reduce the negative impacts of climate change and building resilience to climate-related shocks and stresses across all systems" (Toth 2023).

When people learn about climate threats and visualize potential impacts on places they know or live within, they are more likely to modify their beliefs and attitudes, take action, or seek solutions. Essex County Community Foundation determined communities need to, "*scale climate education and resilience platforms that serve adults and youth with climate resilience as part of the curriculum.*"

TownGreen meets this need by building a regional education model that, working across four Cape Ann communities, can also be replicated in other communities. Our programs

Guided by a marine ecologist, participants in this TownGreen outing visit a salt marsh at high tide.

include webinars hosted by local environmental experts and climate professionals with audience participation; local field trips that reveal climate impacts; community forums and neighborhood workshops that discuss climate change concerns and solutions; and youth initiatives that provide an opportunity for high school students to collaborate on climate resilience projects.

Based on participant survey responses, we have seen a demonstrated increase in participants' awareness, understanding, and action-taking regarding climate change adaptation and resilience strategies. We use a multi-platform and placed-based approach with targeted outreach and relationship-building strategies to engage diverse community stakeholders. Our programs are designed in accessible formats that reach participants where they are in their understanding of climate change.

We are in our ninth year: seven years as an ad-hoc committee, and two and a half years as a state-recognized nonprofit organization. With one staff person, TownGreen has a proven track record of effectively engaging the community. Since 2022, participation across all programs has seen significant growth as noted below. TownGreen collaborates with community organizations and leaders, educators, local and national climate experts, academic institutions, and city, town, and state officials to implement our programs.

Federal research & support

To underscore this urgency, a newly released White House Report, Climate Resilience Game Changes Assessment, July 2024, highlights the challenge local decision-makers often face in translating climate adaptation information into action due to a lack of training, technical assistance, workforce development, and financial resources.

The report also emphasizes the need to support regional efforts that incorporate applied science

approaches to prepare for and recover from climate change impacts. Additionally, a July 2024 National Academies of Sciences, Engineering, and Medicine Workshop in Brief report, Public Infrastructure for Effective Climate Mitigation and Adaptation, shared several successful case studies showcasing the benefit of well-coordinated regional efforts for effective public-infrastructure climate adaptation.

Municipal level collaboration

Cape Ann municipal leaders recognize that these hazards associated with coastal flooding and other extreme weather events, are exacerbated by climate change and will therefore only increase in frequency and severity as our local average land and ocean temperatures rise. Given how these threats naturally cross town lines, leaders are also recognizing an urgent need for more and better regionally-based adaptation solutions.

Uniting communities through a climate adaptation 'working group'

While each municipality within Cape Ann has historically worked on different climate, hazard mitigation, and preparedness plans, these efforts have been independent and compromised by a dearth of needed resources. By uniting the communities on climate adaptation work, and exploring and sharing needs, ideas, and resources for confronting the ever-changing and complex issue of climate change, our emerging regional working group will be a valuable platform - one that also serves as a model hub for other regions in Massachusetts and beyond. Critically, such collaboration also makes us more eligible for far more outside government and private sources funding. The working group design itself draws from several successful examples including the: New Hampshire Coastal Adaptation WorkGroup, San Diego Regional Climate Collaborative, and the Great Lakes Climate Adaptation Network.

TownGreen Program Summary (2022-2024 to date)

Webinar series: Over 700 people have been engaged with 60-100 registrations/webinar. Webinars offer science-based information and discussion on current and projected climate impacts and solutions, including Q&A with experts. In a recent program, Professor Charles Waldheim spoke on projected storm surge impacts, Dr. Jayne Knott addressed infrastructure damage from sea level rise, and Essex officials discussed public safety concerns.

Field trips: 11 field trips held with 200 attendees. Climate experts took participants to Cape Ann locations to look at current ecological degradations as a result of climate impacts. Discussion occurred around ecological restoration and nature-based solutions. One field trip focused on Good Harbor Beach storm surge projections, salt marsh impacts, and culvert restoration.

Workshops, convenings, forums: We engaged 300+ people per year with in-person programs featuring a range of interactive learning, roundtable discussions, brainstorming, and small group discussions. We hosted a Cape Ann-wide presentation by Massachusetts Climate Chief Melissa Hoffer on community-specific climate threats, coastal adaptation issues, and the need for habitat restoration.

Youth climate leadership programs: We hosted and engaged 30 high school students in varying degrees like course instruction and peer conversations on climate change, school-based projects, and a youth climate summit.

Municipal government & business initiatives: We engaged 35 municipal officials and 1,000+ business members on environmental sustainability. Climate education for local and state decision-makers and business owners focused on adaptation actions. We are developing emergency preparedness programs with Cape Ann public safety officials. TownGreen and the Cape Ann Chamber provide workshops for business owners.

Program evaluation results

TownGreen evaluates the success of programs by tracking the number and diversity of attendees and community partnerships. We solicit feedback from participants through interviews and measuring knowledge, attitude, and behavior changes. Participants noted their increased understanding of threats to specific neighborhoods, while students said that programs made them more aware of how to take action. Field trip attendees expressed an understanding of how saltmarsh restoration works and why it's essential.

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CHRONICLES

The Gray Lady

By Matheus Batalha

Professor at Federal University of Sergipe, Brazil

The ferry sailed slowly down the bay of Hyannis Port. It was the first hours of the morning and, in addition to the cold, my wife and I felt hungry. Our hostess for the day was the mother of a great friend. Although we had heard so much about her, we had met her only a few days before.

She was an experienced woman, who had already overcome many challenges. She had worked hard as a waitress in a number of restaurants to fund our friend's studies at schools of excellence, to ensure her a life with more opportunities. Her eyes were sweating wisdom, and her words, always expressed with spontaneity, pointed out to be of a person who knew how to deal lightly with the adversities of life.

As soon as the ferry accelerated into the ocean ahead, we drank a hot coffee, which made everyone wake up.

My friend tried to tell us a little more about our destination, Nantucket Island. She knew the area very well, and back in the 1990s, she had

worked as a nanny for a family of an influential Washington lawyer who owned a house in the upscale Downtown Historic District, a resort frequented by wealthy Americans. She had never seen so much money gush easily as then.

All went well until she discovered that her boss was forging Red Herring Prospectus, an essential document for a company to raise capital on the US stock exchanges in a grand scheme of "Pump and Dump", such as it is

portrayed in “The Wolf of Wall Street" movie. She decided that it was time to move on, without losing focus on working with the public, a quality she had inherited from her mother.

The boat on which we were traveling anchored softly and we were introduced to a new friend who was waiting for us on the quay. Both worked as tour guides for teenagers in the various cities that make up the Cape Cod region, during the heyday of their youth.

We walked by the anchorage of the island, which in the nineteenth century had served as an important whaling port. The main residences, which at that time were inhabited by sea captains, have until today a widow's walk on their roofs, a small terrace where wives, who had great chances of becoming widows prematurely, could observe the ocean in expectation of the return of vessels – to Brazilians interested in American culture, that was all very fascinating.

The houses, mostly, were gray, made of raw wood, aged by the sea wind. The gray unpainted style became fashionable, and our new friend, who served as a guide, told us that the island had been part of his family's life since his parents' honeymoon. We reached Main Street, whose cobblestones were used as ballast on ships, and stopped at Murray's Toggery Shop, a traditional summer clothing store.

At the door of the store, the shopkeeper, wearing a white suit with blue stripes, all made of thin, wrinkled cotton, known to the elite as "Seersucker Suit," asked us if anyone in Brazil dressed like that in the summer. My wife and I cannot disguise the laughter and we explain, graciously, that on Brazilian beaches, in many cases, less is more.

We got to our guide's car, parked just ahead. As there was no room for everyone to travel comfortably, my friend and her mother decided to split the front passenger seat and a whole discussion of legislation, freedom, and democracy followed until we reached a stretch of road where a police officer supervised the construction of a bus stop. "*Has he seen us?*" Asked our guide. "*He doesn't care*", my friend said, explaining that this was a job disputed in Massachusetts, due to the fact that the policeman would be out of danger.

In a place known for its rigidity, it was unusual to watch the law be momentarily put aside – those were the good old days, long before the new golden age of American politics. When we arrived at Sankaty Head Light, a maritime lighthouse located at the easternmost point of the island, we began to feel the heat of summer.

We strolled around and explored the surrounding exuberant nature, and soon we headed to a new destination, a small brewery near Cisco beach, where we would have lunch. We ate hotdogs and lobster rolls and had fun in the garden full of lavenders.

In the middle of the afternoon, we returned to the city and our guide still showed us the private Port of the island, full of yachts and sailboats from different parts of the world. We said goodbye to him and continued walking towards the pier where we had arrived. It was then that our hostess called us to have another beer, only this time in an authentic Dive Bar, an establishment of dubious reputation, frequented only by locals.

There, in the darkness of the basement, as I watched her distill sympathy in a harsh environment, I remembered that my maternal grandfather once explained to me that in life it is important to lose some illusions to give room for long term projects. Losing naivety, without losing hope, is fundamental to evolution in any sphere of life – I think about this every time someone says that the Amazon is immense and can never be destroyed. To avoid traps, one must be strong and at the same time be able to navigate through life with the lightness of a child. This is a lesson that, in many ways, Brazil has not yet learned.

At night, as we roasted s'more of marshmallows in a fire in the backyard of her house, our hostess, sitting elegantly on a garden bench, watched our mischief. The flames lit up her gray hair, just like houses that do not need a disguise. Her vivid gaze was one of those persons who do not see the world as enchanted, the same as of my grandfather's, who in the last Brazilian St. John Party would complete 100 years.

Surely he would be happy to see us sailing.

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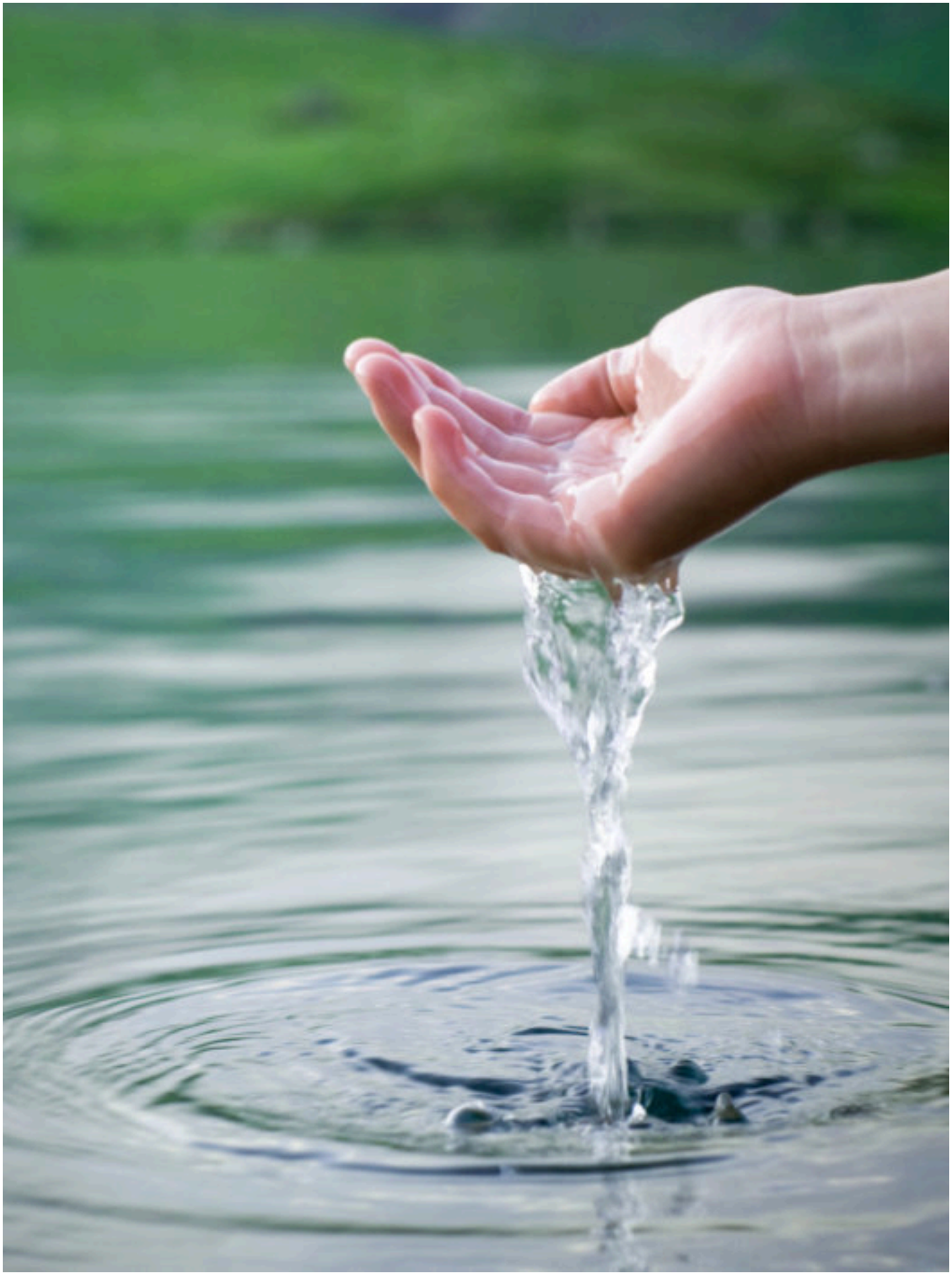

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