

# Biodiversity for a Livable Climate



Youth Climate Rally, Boston 2019

## 2019 Strategic Plan

This year, 2019, the concept of human extinction is beginning to take hold in daily conversation. Our global ecological crisis is that dire. On the other hand, it behooves us to acknowledge that . . .

**. . . Life is the most powerful force on Earth.<sup>1</sup>**

It's the twenty-first century, but our story began around 4 billion years ago. The Earth formed from cosmic dust into a real planet, and thanks to special delivery by comets and asteroids it became host to large bodies of water. In scattered areas of the growing oceans remarkable chemistry occurred, and under just the right conditions (Earth has a talent for "just the right conditions"), the chemistry of life began.

After several more eons the tiny simplest organisms multiplied and evolved into countless other organisms. Many join forces to live together and even inside one another, and form communities that become plants, animals, and fungi. They began crafting environments friendly to themselves and one another, and little by little completely recreated their habitats and invented new ones. They discovered how to migrate to land and live there, how to build new landscapes, how to adapt to new and challenging circumstances.

Then, around 2.4 billion years ago, a microbe we call cyanobacteria built an oxygen atmosphere and the Earth changed forever. With this powerful molecule now readily available to living creatures, evolution developed a whole new and remarkable toolkit.

[T]he increased oxygen concentrations provided a new opportunity for biological diversification, as well as tremendous changes in the nature of chemical interactions between rocks, sand, clay, and other geological substrates and the Earth's air, oceans, and other surface waters. Despite the natural recycling of organic matter, life had remained energetically limited until the widespread availability of oxygen.<sup>2</sup>

For another 1.5 billion years evolution built a foundation, then exploded into hundreds of millions of years of creative and diversified life. In a geological moment early humans appeared, with the modern version (us!) showing up around 200,000 years ago.

From a lifeless rock to a bountiful orb of living creatures, the transformation has been remarkable, and rare if not unique in the boundless universe.

Humans are as much an inseparable part of Nature as anything else. So, too, are the fossil fuels we're burning, ancient life transformed by millions of years of deep burial and intense pressure. These recent developments in planetary history are as natural as any other living phenomena. They are critical elements to consider in thinking about solutions for climate disruption and ecological destruction.

To reiterate: **Life is the most powerful force on Earth!** It is living systems that created the planet we know - the climate, the circulation of the atmosphere and ocean currents, the dynamic interactions of planetary chemistry - and of course the evolution of life itself. Just compare the complexity and variety of this living planet to the likes of Mars or Venus and you get a sense of what life can do. Therefore, it is more than reasonable that restoring damaged ecosystems and normalizing elevated greenhouse gases are well within its reach, even constrained by our present narrow window of opportunity. Sometimes that process works slowly, sometimes very quickly.

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<sup>1</sup> See, for example, Peter Westbroek, *Life As A Geological Force*; Robert Hazen, *The Story of Earth*; David Beerling, *The Emerald Planet: How Plants Changed Earth's History*

<sup>2</sup> [https://en.wikipedia.org/wiki/Great\\_Oxygenation\\_Event](https://en.wikipedia.org/wiki/Great_Oxygenation_Event)

To shed light on this perspective, in 2017 Biodiversity for a Livable Climate began publishing a twice-yearly [Compendium of Scientific and Practical Findings Supporting Eco-Restoration to Address Global Warming](https://bio4climate.org/resources/compendium/),<sup>3</sup> where we collect articles from across the literature of science, write summaries and commentary, and paint a picture that's broad and deep. We do this to provide a valuable resource for people interested in both formal studies and positive practical applications of the forces of Nature.

We encourage you to review the Compendium for hopeful information: about the power of soils to restore the biosphere; managing water cycles to prevent destructive floods and droughts; agricultural approaches that increase productivity and nutrient density without chemical inputs; biodiversity in forest dynamics; recent knowledge about interactions among plants, bacteria, and fungi to maximize ecosystem health and yields; illustrations of steps to return to pre-industrial greenhouse gas levels; plus relevant commentary on the process and practice of science. We also regularly post inspiring examples of eco-regeneration from around the world on [our Facebook page](https://www.facebook.com/bio4climate/).<sup>4</sup>

**Restoring ecosystems is the mission of *Biodiversity for a Livable Climate*.** Our role as an educational non-profit and think tank is to raise understanding and awareness and build an essential foundation for wise, thoughtful action.

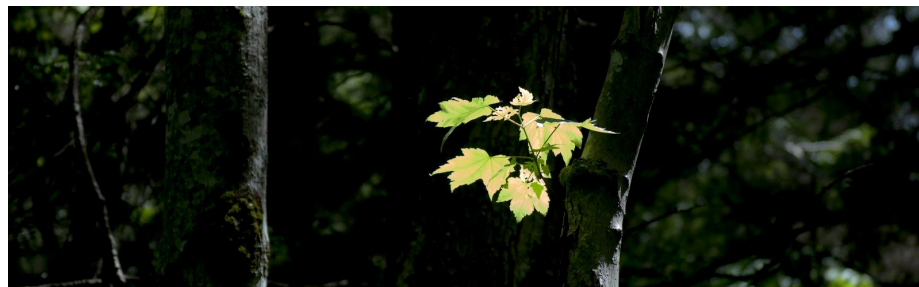
A critically important goal at this point in history is ***to at least gain equal time in the climate conversation for global eco-restoration*** alongside emissions reductions and alternative energy, which at best are only partial solutions.

We teach why, where, and how biology can restore a livable climate by regenerating healthy ecosystems. We put this knowledge into practice by collaborating with a broad network of people, governmental and nongovernmental entities, working together in outreach, education, advocacy, and policy to restore biodiversity. Dramatic results from many individuals and organizations around the world include increased food production and quality, storm moderation, drought and flood prevention, thriving local economies, prevention and tempering of conflict, and environmental and climate justice.

*Biodiversity for a Livable Climate* pledges all of its resources to support this excellent work and help us return the world to abundant life and a livable climate.



Adam D. Sacks, Executive Director



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<sup>3</sup> <https://bio4climate.org/resources/compendium/>

<sup>4</sup> <https://www.facebook.com/bio4climate/>

## OVERVIEW OF BIO4CLIMATE'S WORK

[Biodiversity for a Livable Climate](#)<sup>5</sup> has held [twelve conferences](#)<sup>6</sup> since November 2014, starting with [Restoring Ecosystems to Reverse Global Warming](#)<sup>7</sup> and most recently our twelfth in November 2018, [Climate, Biodiversity, and Survival: Listening to the Voices of Nature](#),<sup>8</sup> which was received with great enthusiasm.

We have over 200 speaker videos with 150,000+ views on YouTube, presenting people who have worked seeming miracles turning degraded and desertified land into healthy, biodiverse landscapes all over the world, moving millions of tons of carbon from the atmosphere into soils along the way. An Introductory Playlist is [here](#).<sup>9</sup> Also see articles about our work in the popular press, one in [Truthout](#)<sup>10</sup> and another on [Weather Underground](#)<sup>11</sup>; and a podcast with Executive Director Adam Sacks on [Green Dreamer](#).<sup>12</sup>

Our main argument is that there is a powerful set of eco-restoration tools that are safe, well-understood, inexpensive, and highly effective. People are currently using them on millions of acres - regeneration on 12 billion or so acres would go a very long way towards our goal of a healthy climate, and bring many associated environmental and social benefits. These are things we can do right now, full speed ahead, while we continue to explore additional approaches.

Bio4Climate is also involved in efforts to bring the eco-restoration approach to climate beyond the choir, and has reached out to several groups who have begun to incorporate our message into their own. We're collaborating with passionate and determined organizations of young people like [Zero Hour](#)<sup>13</sup> and the [Sunrise Movement](#).<sup>14</sup> We're in the early stages of developing an educational alternative for high school and college students, [Youth Education and Activism \(YEA!\)](#),<sup>15</sup> so they can work on climate issues full-time and continue to receive academic credit for studies in regenerative land management and related areas, including organizing, science, history, etc.

If you'd like to learn more about the basis of our work in science, you may be interested in our [Compendium of Scientific and Practical Findings Supporting Eco-Restoration to Address Global Warming](#),<sup>16</sup> an effort to bring this literature from a variety of sources into one place. It has been released semi-annually since July 2017.

Although we are a small nonprofit, we have had an outsized impact on the development of this evolving approach to a rapidly warming planet.



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<sup>5</sup> <http://bio4climate.org/>

<sup>6</sup> <http://bio4climate.org/conferences>

<sup>7</sup> <https://bio4climate.org/conferences/conference-2014/>

<sup>8</sup> <http://bio4climate.org/species-intelligence>

<sup>9</sup> <https://www.youtube.com/watch?v=IR7w9Tritj8&list=PLsWWRqCX9eSYwxFlgBDGMMQXFvK2mwR06>

<sup>10</sup> <https://truthout.org/articles/as-the-biosphere-dies-so-do-we-using-the-power-of-nature-to-heal-the-planet/>

<sup>11</sup> <https://www.wunderground.com/cat6/weather-ground-how-biodiversity-can-help-shape-local-climate>

<sup>12</sup> <https://greendreamer.com/podcast/adam-sacks-biodiversity-for-a-livable-climate>

<sup>13</sup> <http://thisiszerohour.org/>

<sup>14</sup> <https://www.sunrisemovement.org/>

<sup>15</sup> <https://docs.google.com/document/d/1gYgoamYlrRDV-CrQmf0zh-wuLnexXuxIBam0AA2mrGg/edit>

<sup>16</sup> <http://bio4climate.org/resources/compendium>



## OUR MISSION

Through education, policy and outreach, our mission is to promote the power of the natural world to stabilize the climate and to restore biodiversity to ecosystems worldwide.

Collaborating with organizations around the globe, we advocate for the restoration of soil, and of grassland, forest, wetland, coastal and ocean ecosystems – along with the associated carbon, water and nutrient cycles – to draw down excess atmospheric greenhouse gases, cool the biosphere, and reverse global warming, for the benefit of all people and all life on earth.



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## OUR VISION

- An end to pollution from deforestation, desertification, alteration or destruction of wetlands and coastlines, industrial agriculture, and burning of fossil fuels
- Restored form and function of ecosystems and biodiversity around the world
- Collaboration with indigenous peoples who have lived close to the land for generations and understand how to tend to healthy, resilient ecosystems, in habitats everywhere
- A universally held and practiced ethic where biological diversity and ecosystem health are primary in decision-making
- A world where human-caused environmental impacts are *prevented*, and the clean-up of pollution or restoration of degraded environments and ecosystems are seldom needed
- Atmospheric greenhouse gases returned to pre-industrial levels by mid-century.

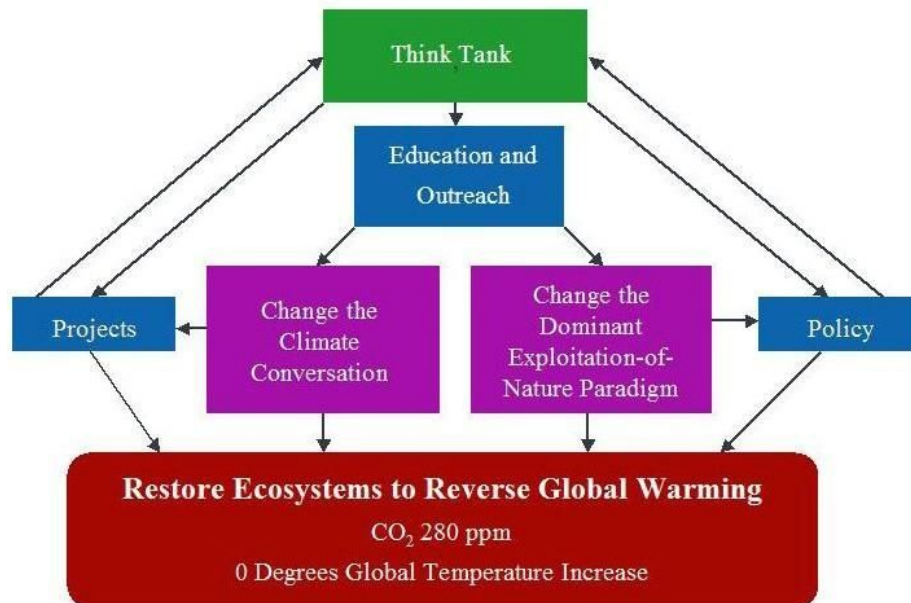
## STATEMENT OF GUIDING VALUES AND PRINCIPLES

The following values and principles guide our internal functioning and substantive work:

- We believe that Nature is our teacher.
- We support nature-based, low-tech, local tools and techniques.
- Our actions are grounded in both empirical and analytical science.
- We try to use systems thinking to inform our assessments and decisions.
- We strive to respect all people and species.
- We pledge commitment and reliability.
- We believe that humanity can safeguard natural systems that support humans and all life on Earth.

- We think that collaboration with diverse interests and expertise is paramount.
- We work to include assessment, evaluation, and refinement in our programs and projects.
- We embrace a global perspective while emphasizing local implementation.
- We support bridge-building among indigenous communities, scientists, land managers, legislators, policy makers, program administrators, activists, the business sector, justice and faith communities, and the general public, as central to the exercise of our mission.

## OUR ROLE AS THINK TANK



Aside from our general investigations, we have two specific areas of focus as a think tank for this Strategic Plan: the Second Law of Thermodynamics (“2nd Law”), and Regenerative Agriculture Practice as Scientific Evidence.

### ***The Second Law of Thermodynamics:***

The 2nd Law states that everything in the universe moves in the direction of increased disorder (entropy). We humans, and indeed all life on Earth, exist because the diversity of species and their complex interactions increase order in extraordinary ways and significantly slow the paths to disorder on Earth.

Undeniably, humans need nature to exist and to thrive. Our deep and extensive compromising of Nature around the world has created run-away disorder, which we witness as the dramatic increase in chaotic weather, melting ice, and many other things. Rampant disorder is bringing us to the current state of impending ecological collapse, climate disruption, and mass extinctions. *When we urgently set about protecting and restoring Nature’s diversity and complexity everywhere, we will restore Nature’s ability to create order and have a chance of averting these existential threats.*

The significance here is that we have a well-established law of physics that *requires* the existence of global biodiversity to address climate and ecological destruction. This provides powerful theoretical support for eco-restoration from outside biological disciplines, and a strong connection between physics and biology.

**Regenerative Agriculture Practice as Scientific Evidence:** We who are advocates of regenerative agriculture are frequently challenged by mainstream climate scientists and activists for lack of data. Does it really sequester carbon? How much? Does it last or is it just cycled back into the atmosphere?

Given biases of the cultural norm and the dominant physical sciences, achieving data satisfaction may be difficult. But if we investigate the question holistically we find that our data are abundant and solid. It is quite simply this: There are many thousands of farms and ranches around the world in almost all habitable climates that thrive even with temperature extremes and elevated greenhouse gases. Those that follow agro-ecological principles have amply demonstrated greater resilience.<sup>17</sup> *Thus, we have a growing base of knowledge of how to manage climate effectively* (see our article on Weather Underground, [Weather from the Ground Up](#))<sup>18</sup>.

Of course it is possible that eventually the effects of excess carbon overwhelm regeneration efforts, but that has not happened yet. We don't know when it might occur, but for now it strongly encourages us to increase the level of support for renewing the biosphere on a massive global scale. Without a healthy life-support system, there will be nothing left.



Youth Climate Rally, Boston 2019

## THE EXISTENTIAL THREATS . . .

Not to belabor the frightening future that's unfolding, but just to set the stage: We are in a serious accelerating warming cycle. Witness the growing disappearance of Arctic ice in the summers. Hurricanes feeding off the Gulf of Mexico's water warming in excess of 86°F. California fires, conflagrations due to record temperatures, depleted soils, greatly diminished vegetation, and avoidable drought conditions. Estimates of sea level rise of at least 4 feet to 6 feet by 2100. A threatening methane spike from stores beneath melting ice in the Arctic's East Siberian Arctic Shelf. Finally, abrupt climate change has happened in the distant past, as much as 8 degrees in less than a decade.<sup>19</sup>

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<sup>17</sup> See the timeline on our Facebook page, <https://www.facebook.com/bio4climate/>, for many examples, as well as our Compendium, <https://bio4climate.org/resources/compendium>

<sup>18</sup> <https://www.wunderground.com/cat6/weather-ground-how-biodiversity-can-help-shape-local-climate>

<sup>19</sup> "11,600 years ago, when Earth emerged from the final phase of the most recent ice age, the Greenland ice core data showed that a 15°F (8°C) warming occurred in less than a decade, accompanied by a doubling of snow accumulation in 3 years. Most of this doubling occurred in a single year." <https://www.wunderground.com/resources/climate/abruptclimate.asp>

Similar trends and concerns are playing out all over the world -- alarming indications of adverse changes to the planet as a consequence of human civilization. Worldwide, these conditions tell a bleak and undeniable story of a changing Earth. On our present trajectory we face an uncertain and, in many respects, an unimaginable, unthinkable future.

## ... AND THE SOLUTIONS

### Addressing the Effects of Ecological Destruction and Climate Change

While the climate movement has focused intensively and almost exclusively on carbon cycles and renewable energy, our position is that the root cause of the ecological and climate crisis is loss of biological diversity and the associated ecosystem functions (e.g., carbon, water, nutrient, and energy cycling). It is true that ecosystem destruction has been made worse by carbon emissions from burning fossil fuels, and this has led to the “perfect storm” driving global warming.

Therefore, while removing excess carbon from the atmosphere is an essential step, it is insufficient in itself. We must be sure to promote biodiversity, and to draw carbon into soils and into the life in the biosphere - in short, establish a global “nature first” morality.

*We are so deep into this storm that only a combination of aggressively pursued biological conservation and ecosystem restoration (which result in carbon emissions reductions and drawdown) can extricate us from our ecological and climate crises.*<sup>20</sup>

**How humans regard the function and use of the natural world is crucially important.** As history shows us,<sup>21</sup> civilizations routinely exceed the limits of their environment (often called “carrying capacity”), inevitably degrading their life-support systems and leading to societal collapse. We must think differently if we are to address the undesirable outcomes of the growth of global civilization. And today we have little time to make such a transition.

**Central to our work is the understanding that we must push for the most fundamental of all paradigm shifts: a change in our relationship to the living Earth.**

While many indigenous groups have long functioned in harmony with the delicate balances in their environments, as societies grow they stratify and urbanize, often becoming distant from the complex biodiverse relationships that make life-support systems possible. That is the position we are in today. Thus, to change our behavior, we have to change the way we think.

### The Power of Biology

Why is it crucial to change the climate conversation to include the power of biology? Because of our evolving understanding of how the natural world works. We now know we must leave behind the long held anthropocentric worldview and embrace a new one: that human well-being is inextricably interwoven with

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<https://www.stockholmresilience.org/research/planetary-boundaries/planetary-boundaries/about-the-research/the-nine-planetary-boundaries.html>

<sup>21</sup> For a scientific view of history, see Joseph Tainter, *The Collapse of Complex Societies*, Cambridge University Press, 1988.



the well-being of the natural world and the biodiversity that makes abundant life on Earth possible.

Biology can drive positive effects on climate by moving atmospheric carbon into soils and enhancing small water cycles to prevent droughts, fires, and floods. Restorative keystone species, such as ruminants, wolves, beavers, prairie dogs, dung beetles, mycorrhizal fungi, trees and native plants are of crucial importance.

Global warming itself is a set of poorly understood emergent, unanticipated properties that develop as a system grows in complexity. It behooves us to understand that we're dealing with *a system*, and treat it *as a system*, not just a sum of its parts. In other words, global warming is a symptom of the degradation of the entire planetary system, not simply an issue of small heat-trapping molecules in the atmosphere.

At Biodiversity for a Livable Climate, we are undertaking the critical work of connecting the dots of the complex system in which we live. We are pushing the boundaries of our collective understanding of how to restore a livable climate and planet, where humans will engage in cooperation with the millions of other species who are doing most of the work.

Life on earth, the only home we'll ever know, deserves no less.



Planet Earth: Transformed by Life

## PROJECTS

- *Youth Education and Activism (YEA!)* is a guided mentorship program under development that offers young people an opportunity to work full-time on nature-based solutions and receive high school or college academic credit.
- *Preparing Young Children for Climate Change* is a workshop for parents and teachers developed by staff educator Paula Phipps on how to present climate change to children in ways that are informational, honest, and forthcoming without being unnecessarily upsetting. After a trial period of local presentations, we will develop a trainer's manual and make this workshop widely available.
- *Ecological Biology for Sustainability Students: Restoring Communities & Ecosystems to Health* is a high

school and college curriculum outline developed by staff scientist Jim Laurie that we will make available to interested teachers and institutions.

- *Videos for Earth Restoration* - We will edit our collection of videos for concise high-impact story-telling, incorporate them into a curriculum, and further develop subject-specific playlists
- *The Compendium Reader* for a non-science audience is a proposed book for wider circulation. In addition, we will increase efforts to promote broadly our semi-annual releases.

## STRATEGIES

Some of the strategies we will use to accomplish our goals and objectives are to (1) establish a deeper working relationship with the press for articles and guest appearances on radio and television news programs, (2) develop extensive use of social media to reach out to activists, policymakers and the general public, (3) publish and widely distribute our monthly e-newsletter, (4) encourage keynote/plenary/workshop invitations from other organizations, and (5) continue to present our conferences and develop our growing collection of conference videos.

## OUR GOALS AND OBJECTIVES

Founded in 2013, *Biodiversity for a Livable Climate* has realized one of its initial organizational goals: We have helped to change the climate conversation to include restored biological diversity and ecosystems along with the drawdown of atmospheric carbon. The eco-restoration role is still undervalued, however, and the next goal for changing the climate conversation will be to actively promote the general understanding that eco-restoration deserves the study, emphasis, and implementation that emissions reductions receive, if not more (see the May 2019 [Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services](https://www.ipbes.net/system/tdf/spm_global_unedited_advance.pdf?file=1&type=node&id=35245), IPBES).<sup>22</sup>

While our initial and current goals are ambitious for a small nonprofit, our vigorous advocacy for a new biological-systems paradigm has placed us in the vanguard of promoting nature-based solutions to fully address global climate disruption and the rampant destruction of the biosphere.

### **Goal 1: Outreach to Promote Understanding of Nature’s Role in Regenerating a Livable Planet**

The climate crisis requires us to address root causes quickly. To change the way people think and act, our essential first step has been to shift the climate conversation, which we have been doing successfully since our first conference in 2014. Our next step moving forward is to broadly disseminate the urgent understanding of nature’s powerful role in regenerating the natural world, including carbon drawdown, and to propose and inspire actions necessary to regenerate billions of acres of degraded and desertified land. In other words, promote a climate conversation that informs and inspires implementation of nature solutions to climate.

#### **Objectives:**

- Host annual conferences to teach the science and practical application of nature-based solutions to the climate crisis and encourage partners to host similar conferences in other regions
- Educate outside organizations about our mission

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<sup>22</sup> [https://www.ipbes.net/system/tdf/spm\\_global\\_unedited\\_advance.pdf?file=1&type=node&id=35245](https://www.ipbes.net/system/tdf/spm_global_unedited_advance.pdf?file=1&type=node&id=35245)

- Expand availability of our speakers to present at outside meetings, forums, and conferences
- Table and present at conferences of other organizations.
- Encourage partners, NGOs, government entities, and businesses/corporations to add ecological restoration and regenerative management to their mission
- Consult for governments and other NGOs on a fee-for-service basis
- Connect to the [Green New Deal](https://www.sunrisemovement.org/gnd)<sup>23</sup>, [Global Deal for Nature](https://www.globalidealfornature.org/)<sup>24</sup>, and the [Half Earth Project](https://www.half-earthproject.org/)<sup>25</sup>.

**Goal 2: Advance policies, programs, legislation and regulation, education initiatives, scientific research and investigations that aggressively implement ecological restoration and restorative management practices.**

***Policies, programs, legislation/regulation.*** Engage policymakers, program directors, and legislators/regulators in the development of policies, programs, and legislative/regulatory actions that respect, preserve, restore, and sustain the biological and ecosystem processes (including carbon, water and nutrient cycles) essential for a livable climate and planet.

**Objectives**

- Advocate for federal, state, and local government decision-making grounded in biodiversity and ecosystem considerations.
- Assist Massachusetts in the development of a Healthy Soils Action Plan and implementation strategy (through invitation to serve on the Healthy Soils Action Plan Committee)
- Identify primary policy, program, and legislative/regulatory areas for attention.
- Introduce and advocate for model legislation -- in Massachusetts, Maryland, and California, and in Congress -- on healthy soils (forests, grasslands, wetlands, coastal habitats, and agricultural soils) and small water cycles.
- Highlight the beneficial impacts of water availability to enhance soil carbon, an especially critical factor in dry regions like western U.S.
- Participate in the United States Climate Alliance to implement nature solutions at the state level, beginning with Massachusetts.



<sup>23</sup> <https://www.sunrisemovement.org/gnd>

<sup>24</sup> <https://www.globalidealfornature.org/>

<sup>25</sup> <https://www.half-earthproject.org/>



### **Goal 3: Develop education initiatives to implement ecological restoration and restorative management practices.**

#### **Objectives**

- Host ecological restoration and restorative management trainings for local land trusts, state and federal forest and park managers, farm owners/managers, city and town open space and park managers, and corporate/business campus owners/managers.
- Offer policy consultation for land and resource managers, on a fee for service basis.
- Identify, and make the case for, ecological restoration and restorative management projects for specific forests, grasslands, wetlands, coastal habitats, and the soils underlying these .

### **Goal 4: Expand our fundraising base**

Multiple funders will be interested in our work. Some will fund general support and others will be interested in funding projects. Projects provide a means to reach new funders, to inform them about our work, and may even inspire them to broaden their funding criteria to include general support.

#### **Objectives**

- Search for new funders based on kinds of projects and geographical areas that they fund.
- Pursue additional funding for projects currently underway.
- Host receptions for prospective funders, highlighting specific restoration projects (and associated general support needs) for which we seek support.
- Mount regular monthly donation campaigns.
- Build our major donor efforts.
- Initiate crowdfunding campaigns.



**BEFORE: Steve's Maple Ave. backyard, cut into squares for depaving**



**AFTER: Steve's backyard after depaving, in one day.**



**AFTER: Steve's backyard one year later, bursting with flowers!**





DESCRIPTION

UPDATES (0)

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## USE OF FUNDS

(OPTIONAL)

Biodiversity for a Livable Climate  
2019 Strategic Plan - Release r.2  
Page 13 of 16

from our organizing and outreach.

- Numerical data gathering and evaluation as applied to various activities:
  - Number of external events that we attend as panelists, workshop leaders or guest speakers, for environmental, educational, or climate-related and other organizations. These opportunities build our coalitions, make new connections, add to our lists, and engage people on the issues.
  - Number of workshops, local meetups, and community gatherings that we organize, and those to which we are invited to engage targeted audiences who might not otherwise be part of this climate conversation. This would include those interested in sustainable living, agriculture, and food, as well as nontraditional audiences such as Native American communities, suburban families, and faith groups.
  - Number of social media followers on networks including Facebook, Twitter, Pinterest, LinkedIn,
  - Increases in numbers of our mailing list and YouTube subscribers.

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## ***Clear and Present Danger:***



Midway Airport, Chicago, 2015

## ***. . . and the Antidote:***



From the website of La Via Campesina, which represents 200,000,000 peasant farmers, <https://viacampesina.org/en/>

## STAFF

### Full time:

- Adam Sacks, Executive Director
- Paula Phipps, Associate Director
- Jim Laurie, Restoration Ecologist
- Jed Katch, Director of Education
- Charles Shore, Associate Scientist, Development Director

### Part time:

- Hannah Kathryn Lewis, Compendium Editor

In addition, several dedicated volunteers help with organizing, conference planning, outreach, and miscellaneous important tasks.

## BOARD of DIRECTORS

- Stephan Rogers, President
- Philip Bogdonoff
- Ana Sofia Gonzalez
- Sharon McGregor
- Nancy Lee Wood
- Adam Sacks (ex officio, nonvoting)
- Jim Laurie (ex officio, nonvoting)

For more information on our staff and board members, please visit <http://bio4climate.org/aboutus/coreteam/>.



## ADVISORY BOARD

- *Brent Blackwelder* is the emeritus president of Friends of the Earth and currently a principal organizer of Foundation earth
- *Tom Goreau* is an award winning marine, soils and climate scientist, **President of the Global Coral Reef Alliance**, a coral reef protection nonprofit, and coordinator of a UN commission for small island states.
- *Jeff Masters* has been a meteorologist since 1982 and flew with the NOAA Hurricane Hunters. He co-founded the Weather Underground website and since 2005 he has been writing one of the Internet's most popular weather and climate change blogs.
- *Fred Provenza* is professor emeritus in Animal Behavior and Management at the Ecology Center and Department of Wildland Resources at Utah State University
- *Bill Reed* is an internationally recognized practitioner, lecturer, and leading authority in sustainability and regenerative planning, design and implementation.
- *Judith D. Schwartz* is a longtime freelance writer, researcher, and author of several books, including the groundbreaking *Cows Save the Planet*.
- *Ridge Shinn* is a Massachusetts rancher and cofounder of Raising Beef for Human Health and the Global Environment.
- *Helen Silver* is an attorney specializing in environmental and sustainability issues, in particular climate change. She lives in Denver and enjoys fly fishing.
- *Richard Teague* is associate resident director and professor of Sustainable Rangeland Management at Texas A&M AgriLife Research and Extension Center.
- *John Todd* is the inventor of Living Machines and has pioneered ecological design and engineering for nearly five decades.



For more information on our  
Advisory Board members, please visit  
<http://bio4climate.org/aboutus/advisoryboard/>

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