A Practical Guide for Environmental Eldership

Sustainability | Resilience | Advocacy | Gratitude

GrayIsGreen

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Introduction

Gray Is Green is a network of older adult Americans aspiring to create a green legacy for the future. As environmentally conscious elders, we respond to a generational call: to cocreate a future of ecological sustainability and environmental justice. We are alert to the historic challenges facing our planet. We embrace our eldership, living beyond consumerism and ageism. We hold next generations of humans in mind and consider the future of ecosystems and other species. We hope that you will join this movement and take action for the Earth's future and the benefit of all.

In this ebook, you will find education, opportunities to connect with others working for the environment, and ways to support organizations that are creating change. We have a responsibility to future generations and to the Earth that nurtures us. That responsibility requires us to learn new ways to carefully steward limited resources, in our homes, communities, and countries. It also calls for us to act, as advocates and partners, pressing for changes that will increase equity and sustainability in our world. And it asks us to reflect on the Earth, our place in its ecosystem, and what we owe the natural world for the support it has given us over our lives. Those three responsibilities—to learn, act, and reflect—are at the heart of our identity as Gray-Greens, elders who have committed ourselves to environmental justice. We will share with you tools and organizations to help you move forward in your journey as a Gray-Green, no matter where you are in that journey.

Household Sustainability

As we elders embrace practices at home and in our daily lives to honor our deepest intentions for the future, we arise in gratitude for our decades of living, we express generosity toward the world of our children and grandchildren, we embrace humility toward all we have witnessed and at all we have done—and left undone—over the decades.

In this focus on our homes and daily routines, we explore our practices related to eating, sheltering, using water, consuming energy, and acquiring and releasing the "stuff" of life. In taking up practices on behalf of the future, we join the movement to walk more gently on Earth, while supporting that gentle walking as the new normal for households and communities across our land.

Ecological Footprint

An ecological footprint is a measure of human impact on Earth's ecosystems. Footprints vary by country, region, community, household, and individual, depending on various use factors. Common footprint measures include those for land, water, and carbon consumption.

The Global Footprint Network calculates the global ecological footprint from the United Nations and other data. They estimate that as of 2007 our planet has been using natural capital 1.5 times as fast as nature can renew it. Terrapass offers simple and accessible footprint calculators for individuals, households, businesses, and events. Use this tool to learn where you are now and what you can change.

You can also use our worksheet, provided on page 9, to start to understand your own ecological footprint.

Water Footprint

We use more water than we realize to wash dishes, water the garden, shower, and more. Water footprint calculators for personal use are marvelous tools to learn about the direct use of water at home and in the garden as well as indirect water consumption related to food choices. Grace Communications Foundation offers a way to calculate your water footprint and then play with your answers to discover ways to lower it (also see our water conservation section).

Carbon Footprint

A carbon footprint is defined as the total set of greenhouse gas emissions caused by an individual, event, organization, or product. There are serious technical challenges related to accurately calculating ones carbon footprint that arise from the complexities of our carbon-intensive world: indirect vs. direct energy consumption, naturally occurring emissions, and more.

Actions

- Complete the personal ecological footprint worksheet included below
- Calculate your carbon footprint at Terrapass
- Learn about carbon offsets at Terrapass
- Go to Carbon Fund to start offsetting your carbon use
- Follow these tips to reduce your footprint

Indirect sources of CO2 emissions include emissions from transportation, production, and related activities often far removed from our personal or household consumption. In the United States, most of the carbon footprint emissions for the average household come from indirect sources, such as fuel burned to produce goods far away from the final consumer. These are distinguished from emissions from burning fuel directly in a personal car or furnace, which are commonly referred to as direct sources of a carbon footprint.

Carbon footprint calculators measure direct emissions of gases that cause climate change into the atmosphere as an indicator of relative sustainability of energy use practices.

Personal Ecological Footprint Worksheet

What do we do?

We aspire to embrace our eldership, living beyond consumerism and ageism. Our Curriculum for Gray-Green Living offers a variety of ways to join–and re-engage with–this elder movement.

Complete each of the following categories for a typical day in your home. Add the points in each category to obtain a subtotal, and transfer each subtotal to the summary chart. Use the grand total to calculate your ecological footprint.

Water Use — My Score

1. **My shower (or bath) on a typical day is:** _____
   - No shower/bath (0)
   - Short shower 3-4 times a week (25)
   - Short shower once a day (50)
   - Long shower once a day (70)
   - More than one shower per day (90)
2. **I flush the toilet:** _____
   - Every time I use it (40)
   - Sometimes (20)
3. **When I brush my teeth:** _____
   - I let the water run (40)
4. **We use water-saving toilets:** (-20) _____
3. **We use low-flow showerheads:** (-20) _____

Water Use Subtotal:

Food — My Score

1. **On a typical day, I eat:** _____
   - Meat more than once per day (600)
   - Meat once per day (400)
   - Meat a couple times a week (300)
   - Vegetarian (200)
   - Vegan (150)
2. **___ of my food is organic or grown locally:** _____
   - All (0) | Some (30) | None (60)
3. **I compost my fruit/veg. scraps and peels:** _____
   - Yes (-20) | No (60)
4. **___ of my food is processed:** _____
   - All (100) | Some (30) | None (0)
5. **___ of my food has packaging:** _____
   - All (100) | Some (30) | None (0)
3. **On a typical day, I waste:** _____
   - None of my food (0)
   - One-Fourth of my food (25)
   - One-Third of my food (50)
   - Half of my food (100)

Food Subtotal:

Transportation My Score

1. **On a typical day, I travel to work by:** _____
   Foot or bike (0)
   Public transit (30)
   Private vehicle; carpool (100)
   Private vehicle; alone (200)
2. **Our vehicle's fuel efficiency is:** _____
   More than 30mpg (-50)
   24-30 mpg (50)
   17-23 mpg (100)
   Less than 17 mpg (200)
3. **The time I spend in vehicles on a typical day is:** _____
   No time (0)
   Less than half an hour (40)
   Half an hour to 1 hour (100)
   More than 1 hour (200)
4. **How big is the car I travel in on a typical day:** _____
   No car (-20) | Small (50)
   Medium (100) | Large (SUV) (200)
3. **Number of cars in our driveway:** _____
   No car (-20)
   Less than 1 car per driver (0)
   1 car per driver (50)
   More than 1 car per driver (100)
   More than 2 cards per driver (200)
4. **Number of flights I take per year:** _____
   0 (0) | 1-2 (200) | More than 2 (400)

Transportation Subtotal:

Shelter My Score

1. **My home is _____:** _____
   Single house on a large lot (suburbia) (50)
   Single house on a small lot (city) (0)
   Townhouse/attached house (0)
   Apartment/Condo (-50)
2. **Divide number of rooms per person, no baths, by the number of people living at home:** _____
   1 room per person or less (-50)
   1-2 rooms per person (0)
   2-3 rooms per person (100)
   More than 3 rooms per person (200)
3. **We own a second or vacation home that is often empty:** _____
   No (0)
   We own/use it with others (200)
   Yes (400)

Shelter Subtotal:

Energy Use — My Score

1. **In cold months, our house temp is:** _____
   Under 15°C [59°F] (-20)
   15 to 18°C [59 to 64°F] (50)
   19 to 20°C [66 to 71°F] (100)
   22°C [71°F] or more (150)
2. **We dry clothes outdoors or on an indoor rack:** _____
   Always (-50) | Sometimes (20) | Never (60)
3. **We use an energy-efficient refrigerator:** _____
   Yes (-50) | No (50)
4. **We have a second refrigerator/freezer:** _____
   Yes (100) | No (0)
5. **We use 5 or more compact fluorescent or LED light bulbs:** _____
   Yes (-50) | No (100)
6. **I turn off lights, computer, and television when they're not in use:** _____
   Yes (0) | No (50)
7. **To cool off, I use:** _____
   Air conditioning: car (50)
   Air conditioning: home (100)
   Electric fan (-10)
   Nothing (-50)
8. **My clothes washer is:** _____
   Top load (100)
   Front Load (50)
   Laundromat (25)

Energy Use Subtotal:

Clothing — My Score

1. **I change my outfit every day and put it in the laundry:** (80) _____
2. **I am wearing clothes that have been mended or fixed:** (-20) _____
3. **One-fourth of my clothes are handmade or secondhand:** (-20) _____
4. **Most of my clothes are purchased new each year:** (80) _____
5. **I give the local thrift stores clothes that I no longer wear:** Yes (-50) | No (100) _____
6. **I never wear __% of the clothes in my closet:** _____
   Less than 25% (25) | 50% (50)
   75% (75) | More than 75% (100)
7. **I buy _____ new pairs of shoes every year:** _____
   0-1 (0) | 2 to 3 (20)
   4 to 6 (60) | 7 or more (90)

Clothing Subtotal:

Stuff — My Score

1. **All my garbage from today could fit into a:** _____
   Shoebox (20)
   Small garbage can (60)
   Kitchen garbage can (200)
   No garbage create today! (-50)
2. **I recycle all my paper, cans, glass and plastic:** (100) _____
3. **I reuse items rather than throw them out:** (-20) _____
4. **I repair items rather than throw them out:** (-20) _____
5. **I avoid disposable items as often as possible:** _____
   Yes (-50) | No (60)
6. **I use rechargeable batteries whenever I can:** (-30) _____
7. **In my home we have _____ number of electronics (comp., tv, stereo, vcr, dvd player, xbox, etc):** _____
   None (0) | Very little (20)
   Some (60) | A lot (80)

Stuff Subtotal:

Summary — My Score

Transfer your subtotals from each section and add them together to obtain the grand total.
Divide the grand total by 300.

Water Use	_____
Food	_____
Transportation	_____
Shelter	_____
Energy Use	_____
Clothing	_____
Stuff	_____

Grand Total _____ **÷ 300 =** _____ **Earths**

If everyone lived like I do we would need _____ Earths to sustain the people of the world.

Multiplying the number of Earths needed by 4.7 gives the number of acres used to support my lifestyle: _____ acres

Worldwide there are 4.7 biologically productive acres available per person, and this doesn't include all of the other plants' and animals' needs.

Some average footprints:
United States: 24 acres | Canada: 22 acres
Italy: 9 acres | Pakistan: Less than 2 acres

Organizations to Support

According to **Cool Effect**, the average American emits 16.6 tons (over 35,000 pounds) of carbon dioxide (CO2) per year. Through this organization, you can buy carbon offsets to balance out your footprint. This money goes to various projects around the world that aim to reduce our global CO2 output. These organizations provide affordable cookstoves to replace charcoal- and wood-burning cooking methods in Uganda, protect old-growth forests in Alaska, transform methane into clean fuel in Vietnam, and preserve grasslands in Colorado, to name a few.

Buy carbon offsets here.

The **Coalition for Rainforest Nations** works to protect rainforests around the world. Forests absorb about half of greenhouse gas emissions, making them critically important to a clean atmosphere. This organization introduced a program for developing countries to show they are being active in climate change work called Reducing Emissions from Deforestation and Forest Degradation (REDD+), which became part of the Paris agreement. By supporting the coalition, you provide support for countries with key ecosystems who are working to reduce their emissions.

Donate to the Coalition for Rainforest Nations.

The **Clean Air Task Force** has been around since 1996. In that time, it has helped limit the power sector's CO2 emissions; helped establish regulations for diesel, shipping, and methane emissions; and led a successful campaign to reduce pollution from coal power plants in the US. Its current projects include developing measures that will successfully scale the use of bioenergy and create more effective forest management, reducing the use of super pollutants (such as methane and black carbon) in the US and internationally, and advocating for private sector innovation to adopt zero carbon energy use.

Donate to the Clean Air Task Force.

Looking for other high-impact organizations to support? Read through the Founders Pledge Climate Change Cause Area Report for more recommendations.

Finally, when you shop, spend your dollars on products from companies who are doing the work to reduce their own carbon footprints. Individual action will never be enough to turn the tide; we need big companies and whole industries to change their practices.

Spend your money with companies committed to reducing their carbon footprints. Here is a list of one hundred companies to support.

Food

The United States wastes 30 to 40 percent of its food supply. This happens at all levels in food production, from problems during production to spoilage during transportation and in consumer homes. Not only could this wasted food have been used to support families that experience food scarcity, but it also means that land use devoted to growing food is highly inefficient.

At the local level, there are things individuals and communities can do to promote a better food system. One such initiative is to create community food forests. Other things you can do at home include supporting local food and eating organically.

Local Food Movement

The local food movement that has arisen in neighborhoods and communities around the planet consists of people who want to know where their food is coming from. Local food is grown or raised and harvested close to consumers' homes, then distributed over much shorter distances than is common in the conventional global industrial food system. In general, local food systems are associated with sustainable agriculture, while the global industrial food system is reliant upon industrial agriculture.

Food grown and distributed within the global industrial food system tends to support economic systems of production which are ecologically and environmentally damaging. The carbon footprint of our industrialized, nonlocal system of food production and distribution is one of the primary contributors to climate change. Foods grown hundreds and thousands of miles away must be transported by train, plane, and automobile, which releases dangerous levels of carbon into the atmosphere.

Organic Food

Organic produce is grown without the use of pesticides, synthetic fertilizers, sewage sludge, or genetically modified organisms. Animals that produce meat, poultry, eggs, and dairy products do not take antibiotics or growth hormones. Essentially, organic food is grown the way humans have cultivated and gathered food for thousands of years, before the rise of the contemporary industrial food system from which so much of our food comes today.

Eating organically not only prevents health problems from unnecessary chemical elements in our food, but is also more nutritious overall. The Organic Consumers Association tells us that on average, organic food is 25 percent more nutritious in terms of vitamins and minerals than products derived from industrial agriculture. Since organic food's shelf price is only 20 percent higher than non-organic food, this actually makes it cheaper gram for gram. This figure even conservatively leaves out the astronomical hidden costs of industrial food production like government subsidies and damage to health, climate, and environment.

Food Waste

While food waste happens at every point along the food chain, there are things we can do to reduce food waste at home and in our communities in addition to supporting local food suppliers. Reducing your food waste at home may require shifts in your shopping and cooking habits. To learn and get support in doing this, complete the I Value Food challenge, a six-week program that guides you through tracking preventable waste and changing your food habits.

Consider getting involved with a food rescue organization near you. These organizations work to reduce food waste as well as support those experiencing food scarcity by rescuing and redistributing food that would otherwise go to landfills. Support them with your time and money. Find an organization near you using the Food Rescue Locator. And learn about home composting options so you can properly repurpose unavoidable food waste.

Actions

- Start shopping at farmers' markets for produce and other goods; find one near you
- Participate in a CSA (community-supported agriculture) to support local farmers and sustainable land use
- For in-depth learning about food resilience, read articles from the Symposium on American Food Resilience
- Support a food rescue organization

Organizations to Support

The Land Institute is working to displace the "now predominant industrial, disruptive system of agriculture" with an agricultural system that provides ecological stability in the prairie, perennial grain yields comparable to that from annual crops, and polycultures that mimic natural systems over the next forty years. These food production methods will sustain land and soil rather than eroding them.

Here are some ways to support The Land Institute.

In the US, somewhere between 30 to 40 percent of food produced is wasted. That wasted food produces the equivalent of 37 million cars' worth of greenhouse gas emissions just in this country. The **Food Recovery Network** is working to change that by organizing college students to recover food from dining halls that would be wasted and donate it to people experiencing food scarcity. Since it started in 2011, the organization has donated 3.9 million pounds of food that otherwise would have gone to waste, which means it has prevented more than 6.8 million pounds of carbon dioxide from entering the atmosphere. And those young adults learning how to run this system will carry their abilities forward to continue this work after school.

Donate to the Food Recovery Network, or talk to a young person in your life about how they can start a chapter at their school.

The **Cooperative Food Empowerment Directive** (CoFed) is another organization led by students (specifically people of color) with the goal of establishing food and land co-ops that incorporate racial justice values—an important mission, since 22.5 percent of African American households and 18.5 percent of Hispanic households are food insecure, compared to the national average of 12.3 percent. The organization combines the values of cooperative economics and collective liberation by training a generation of young people to create an equitable food system. They produce curriculums and guides to support new members.

Donate to CoFed.

Food First supports the food sovereignty of local communities across the US through research, education, and action. Since its inception in 1975, Food First has provided analysis and support to activists and alliances working for food system changes.

Find out how to contribute or join one of Food First's projects.

Water Conservation

Water is a life-giving and critical element in our ecosystem, and increasingly a commodity as drought becomes more common. In addition to nourishing us, however, the flow of water can contribute to pollution as stormwater carries pollutants from surfaces into waterways.

With so much potential for pollution, it becomes important for us to take steps to decrease runoff from impermeable surfaces. There are a number of ways to do this in our homes and communities by using vegetation and natural designs.

These methods are collectively called green infrastructure, as opposed to the more traditional concrete pipes, tanks, and treatment systems that are called gray infrastructure. A few of the more common examples are rain barrels, bioswales, rain gardens, and permeable pavement. In addition to reducing runoff pollution, such methods help us conserve and reuse water.

Rain Barrels

We can reduce runoff by collecting rainwater in rain barrels and using it to water plants later or simply letting it flow out and soak into the ground during drier conditions. Your local wastewater treatment facility or watershed association might sponsor rain barrel distribution programs. Rain barrels are easy to set up and are gaining in popularity for diverting runoff away from home foundations. They also provide a good water reuse system—hook a hose up to the barrel to water your lawn and garden.

Rainwater collection is regulated at the state level, so check this regulations map to find out if you may need a permit in your area.

Bioswales and Rain Gardens

Another way to reduce water runoff is through landscaping. Two simple and common practices are bioswales and rain gardens. Bioswales are depressions that allow water to collect and slowly soak into the ground. Rain gardens are also depressions that allow water to soak into the ground, but are landscaped with garden plants. Since they often appear to be ordinary gardens, rain gardens can be an attractive addition to the landscape.

These landscaping options can be very simple or highly engineered, depending on the slope of your property and the soil conditions that allow water to percolate into the ground.

Permeable Paving

There are places where we need to have a hard surface and avoid muddy conditions. Impermeable pavement can be replaced by various options that will allow water to soak into the ground. Permeable pavement may include special mixes of asphalt or concrete, or paving blocks, all with openings to allow water through and reduce runoff.

Reducing Indoor Water Use

Indoor water conservation also helps to prevent water pollution, as well as protecting a finite natural resource. There are a number of devices that you can use, such as shower timers, as well as lower-tech ways to use less water at home. Read Eartheasy's guide to reducing water usage for forty-five tips.

Organizations to Support

Although most Americans take water for granted, more than two million of us lack access to clean running water and basic indoor plumbing. The US Water Alliance is a partnership between the water industry, community leaders, environmental organizations, and the agriculture sector to improve water infrastructure and knowledge of water conservation in the US.

Take part in their annual October Day Without Water event or check out the resources from the Value of Water campaign.

Agriculture accounts for seventy percent of the fresh water consumed by humans, so supporting environmental innovation in local agriculture is essential to a sustainable future. For seventy-five years, the **Soil and Water Conservation Society** has been supporting policy changes, pilot projects, and professional publications to make conservation a priority in the agricultural world.

Donate to the Soil and Water Conservation Society.

Actions

- Learn how to set up a rain barrel
- Read this guide to setting up a rain garden from the Wisconsin Department of Natural Resources
- Consider replacing your asphalt or concrete driveway with paving blocks
- Take steps to reduce indoor water usage (find ideas here)

Globally, unsanitary water leads to more deaths every year than all forms of violence combined. Access to clean water can completely change the outlook for a community. **Charity: water** is an organization that works in twenty-nine countries, largely developing nations, to increase water equity and access. Their work particularly impacts women and girls; with the time saved by close access to clean water, they have greater opportunities for education and income.

Donate to Charity: water or start your own fundraising campaign to support them.

Energy Conservation

Once you understand your ecological footprint, you can start finding ways to reduce energy usage. Small changes can add up to make a big difference in your energy usage and monetary expenditure: Energy.gov outlines the energy and financial outcomes of various recommended actions.

To be as effective as possible, start with a home energy audit, which will examine every area of your indoor property (including basements, attics, and garages) for both energy and other environmental concerns and give you a detailed list of recommended changes to make. A high-quality energy audit will include blower door testing to find air leaks, gas leak testing, heating appliance testing, and more.

HVAC Systems

Heating, ventilation, and air conditioning systems are the largest energy users in US homes, accounting for up to 46 percent of a home's energy consumption. There are many ways to improve your current HVAC infrastructure as well as options when you're installing a new system. For existing systems, regular maintenance is important, as is finding the lowest or highest setting on the thermostat that will keep your home comfortable enough. Remember to dress for the season, too, to help regulate your body temperature.

Energy.gov provides a helpful guide to heating and cooling systems that covers using programmable thermostats, efficient cooling systems, heat pumps, and topics related to water heating (which is the second-largest energy user in the home).

Appliances

Appliances account for approximately 13 percent of energy usage. Choosing Energy Star certified appliances is ideal, of course, when you are able to replace your appliances. Beyond that, however, you can change the way you use your appliances to conserve energy.

In the refrigerator, keep the most-used products in easily accessible areas and clean underneath and behind the unit regularly to maintain good airflow. Do only full loads of laundry and use cold water. Choose to use smaller appliances (like a toaster oven or slow cooker) over the oven when possible, and use the oven only in cooler parts of the day in warm months. These are just a few tips; find more energy-saving methods at Direct Energy.

Windows and Insulation

Given that heating and cooling use the most energy at home, good insulation is an important factor in energy conservation. Common sources of heat loss include attics, window frames, and door frames. An energy audit will identify which areas of your home are the biggest sources of heat loss so you know where

to focus your efforts. When choosing insulation, you'll want to understand R-values, which indicate the overall effectiveness of a type of insulation. Make sure you are choosing insulation with the right R-value for your climate zone.

Solar Panels

The sun offers us the cleanest and most abundant renewable energy source available, and many parts of the US receive abundant sunlight. For those who can afford it, installing home solar panels is a great method of energy conservation. Many states offer financial incentives to homeowners to help offset the cost. Look for tax credits, cash rebates, and other solar panel incentives by state. On that same page at EnergySage, you can look up estimated costs of installing solar panels in your area.

There are a few types of solar panels available to homeowners. First-generation options include monocrystalline silicon panels—these are currently the most common household panels—polycrystalline silicon panels, thin-film panels, and amorphous silicon panels. A more recent design, and the second most common, are cadmium telluride panels. Read more about the advantages and disadvantages of these types of solar panels to find the best option for you.

Beyond installing single-home panels, homeowners have the option of joining or creating a community-based program called a solarize campaign. This gives everyone involved the ability to negotiate rates and decrease the up-front costs of solar energy.

Wind Energy

You may be used to fields of wind turbines on small hills or plains, but did you know home wind turbines are also available? Wind energy is a cost-effective option: the Office of Energy Efficiency and Renewable Energy tells us that it is one of the lowest-priced energy sources available. In addition, because it is sold at a fixed price and has free fuel, it mitigates the price uncertainty of traditional sources of energy. While

wind power cannot meet our entire energy need, it is a valuable supplemental source.

To make use of renewable wind energy, you can either install a home wind turbine in your yard or buy wind energy from your utility company. There are a few ways to do the latter, depending on your location. If you live somewhere with competitive utility options, find out which one offers green energy. You may also have the option to purchase Renewable Energy Certificates (RECs)—also called green certificates—which are sold separately from your current electricity service. With these, you pay for electricity produced on your behalf using renewable sources.

Home wind turbines work best in rural areas due to zoning restrictions and space needs, though there are also rooftop turbines that may work well for suburban and some urban settings. If you live in a location with regular high winds, this may be a good option for you. Use this Climate.gov average wind speed tool to find out. As with solar power, you will likely find incentives and rebate programs for installing home wind turbines.

Actions

- Find solar panel policies and incentives in your state
- Choose the best solar panel option for you
- Consider joining or starting a solarize campaign in your community
- Look into REC providers in your area
- Consider the value of installing a home wind turbine

Organizations to Support

Fossil fuels are the number-one contributor to climate change, and two-thirds of the electricity in the US comes from fossil fuel sources. The Green Energy Consumers Alliance helps individual consumers understand their options for renewable energy and runs programs to get us to a low-carbon energy system more quickly. Its priorities include green electricity, solar energy, electric cars, and energy policy.

Donate to the Green Energy Consumers Alliance or take part in one of their programs for individual consumers.

Environmental goals are critical motivators for promoting energy efficiency, but economic goals can also be important. The Alliance to Save Energy works toward greater energy productivity—getting more economic output out of each bit of energy we use. Since 1980, they have helped double US energy productivity. Through legislative advocacy and technological innovation, they are pushing for even greater energy productivity in the future.

Donate to the Alliance to Save Energy or advocate for energy initiatives through their Efficiency NOW Advocate program.

The US could reach the halfway point of our climate goals through greater energy efficiency. From selecting the right lightbulb to using efficient design in new construction, the American Council for an Energy-Efficient Economy (ACEEE) has the information needed to help everyone—individuals, municipalities, governments, and businesses—decrease their energy footprint.

Donate to ACEEE or use their Smarter House and Greener Cars websites to improve your own energy efficiency.

The transition to a 100 percent clean energy future will require a highly trained workforce, new technologies, and the support of every energy consumer. Making that transition efficient and equitable is the primary focus of the Interstate Renewable Energy Council. They advance customer protections, advocate for effective regulations, and support new professionals entering the field.

Donate to the Interstate Renewable Energy Council or, if you are interested in solar power, check out their Be Solar Smart Consumer Checklist.

Energy resilience is also a key piece of the energy conservation puzzle. Climate change is increasing extreme weather events, and the resulting power outages put many people, particularly those in medically vulnerable households, at great risk. The Resilient Power Project and its parent, Clean Energy Group, reduce the dangers of these outages by supporting clean resilient energy through localized solar energy and energy storage technologies.

Donate to Clean Energy Group or sign up for one of their newsletters to learn more.

Household Waste

Americans, on average, send 4.4 pounds of trash to landfills every day. We do not refer to this as throwing away, because there is no "away"—there is only relocation. There are over 2,000 active landfills in the United States, and more that are inactive. Some of the latter have been repurposed as parks or other public spaces. Active landfills, however, are sites of rapid bacterial decomposition and therefore a significant source of greenhouse gases, particularly methane, which is especially potent when it comes to absorbing the sun's heat and thus contributing to global warming.

The best way to limit what we send to landfills is to reduce what we produce and to reuse what already exists through repurposing, passing on to others, and repairing. Sharing potentially useful items in your community can be done through Freecycle or a Buy Nothing group. Reduction in output will require huge, systemic changes to our economy; in the meantime, individuals can improve recycling and composting habits at home and in their communities.

Recycling

Although recycling programs have been around for decades now, the public has a long way to go in making full use of them. The US Environmental Protection Agency (EPA) estimates that 75 percent of the American waste stream is recyclable, yet we only recycle about 30 percent of it. There are many ways we can improve household recycling.

To start, understand your curbside recycling. Most paper or cardboard (without food residue) can be recycled, as can almost all glass and clean plastic containers with the numbers 1 - 7 on them. Plastic bags of all sorts cannot be recycled curbside; they cannot be sorted in the processing equipment used by curbside recycling programs. Aluminum can also be recycled curbside.

It is important to know what you should and should not put into your curbside bin, because contamination with other materials damages the recycling system. This can result in materials needing to be sent to a landfill that could otherwise have been recycled, higher expenses that discourage additional recycling programs or put existing ones out of business, and unsafe working conditions, among other consequences. Responsible recycling is what makes the reuse system work.

Go beyond curbside recycling. For instance, many stores across the country will collect plastic bags and send them to a suitable recycling facility. Major retailers such as Target, Walmart, and Kroger as well as smaller grocery stores and co-ops have plastic bag drop-off bins. Stores like these may also collect batteries and light bulbs for appropriate disposal so they do not contaminate landfills with toxic chemicals. Other materials can also be recycled if you are willing to put in a little time and effort getting them to the right place. Use Earth911's recycling guide to find out where to take automotive items, electronics, household waste, and more for recycling.

Composting

If you are lucky enough to live in a municipality with public compost pickup, composting your food is as simple as contacting public waste management to get a curbside bin. Most of us, however, do not yet have that convenience. Fortunately, there are multiple ways to compost at home: backyard piles, bin systems, and even kitchen gadgets.

If you have a yard, a backyard compost pile is likely your best option. It is low-maintenance, only requiring occasional turning, watering, and the proper balance of brown (carbon-based) and green (nitrogen-based) materials. Brown items include dry leaves, twigs, and hay, while green items include grass clippings and kitchen food scraps. You can build a bin to contain the pile or simply choose a remote corner of your yard. Keep the ratio of green to brown around 1:2 and turn the pile once a week. Water when it looks dry. In the winter, simply cover the pile with a tarp at the beginning of the season and resume in the spring.

Don't put these items in your home compost (the first three can, however, go in industrial compost):

- Bones and meat
- Fats and cooking oils
- Dairy products
- Waste from dogs or cats
- Treated wood
- Weeds or diseased plants
- Yard clippings with pesticides or herbicides on them

Actions

- Learn what to put in and leave out of your curbside recycling
- Choose a home composting system to start turning your kitchen scraps and yard waste into fertilizer for gardens
- Talk to your local officials about the benefits of municipal composting
- Join a CompostNow program in your area
- Find and support your state's recycling program
- Use Earth911's recycling database to find out where to recycle almost anything

A worm bin is another composting option for those without yard space; this is referred to as vermicomposting. You can use this setup inside or on a porch. The EPA provides a good guide to setting up a worm composting bin. For an even easier option, check out kitchen food recyclers. These devices can turn a week's worth of food scraps into nutrient-rich fertilizer in just one day using heat, moisture, and a plant-based additive. If you are not able to maintain a more traditional home composting system, this option may be the answer.

Organizations to Support

The fastest-growing waste stream on the planet is e-waste—all the laptops, smartphones, tablets, and other devices we discard when we upgrade to newer models. Basal Action Network (BAN) takes on toxic waste streams, including e-waste, plastics, and old ships. They also have a strong environmental justice focus, ensuring that more prosperous regions do not off-load their toxic waste on disenfranchised communities.

Donate to BAN, sign up as a volunteer, or use their e-Stewards network to find responsible recyclers near you.

Littering may seem like a small issue compared to landfills, but it is also a significant waste stream, costing $11.5 billion each year to remediate. Keep America Beautiful uses volunteers, PSA campaigns, and community grants to clean up litter in our environment and increase recycling. They even run an annual event, TrashDash, to celebrate "plogging," or jogging while picking up litter.

Donate to Keep America Beautiful or volunteer with an affiliate near you.

Increased composting could cut the waste stream to landfills in half, and adding compost to the soil filters out more than two-thirds of urban stormwater pollutants. The US Composting Council uses industry education, resource dissemination, and legislative advocacy to advance the use of composting in the US.

From providing information for small backyard composters to hosting large industry events, they work to make composting more economical and efficient.

Donate to the US Composting Council, check this page for sample letters to government agencies and officials, or use their map tool to find a certified compost source for your garden.

Yards and Gardens

We need not venture out to city or regional parks to benefit from spending time in the natural world: many of us have access to green space right outside our homes. Studies have identified various benefits of gardening, including decreased risk of dementia and improved mood. And given that lawns themselves pose environmental hazards due to wasting water to keep them green, the use of pesticides, and water runoff, rethinking your yard space is another way to boost your home's environmental performance.

Replacing grass, adding pollinator-friendly plants, and building food gardens are a few ways to improve your personal green space in addition to the water conservation methods discussed earlier.

Alternative Lawns

Grass requires a lot of water to keep green (the EPA estimates that about a third of public water is used to water grass: that's 9 billion gallons a day). Trimming that grass requires 200 million gallons of gas. And maintaining a lawn without weeds requires pesticides that harm birds and bees.

But there are many alternatives to a traditional lawn. Clover provides good, low groundcover—this option is best if you don't need to worry about attracting deer to your yard. Other types of groundcover that sprawl rather than growing tall will create a low-maintenance, attractive yard. For sunny areas, try dwarf mondo grass, moss, Japanese sweet flag, barberry cotoneaster, Asian star jasmine, creeping jenny, or creeping herbs like thyme and oregano. Shady spots can host sweet woodruff and lily-of-the-valley. In dry climates, choose lantana or stonecrop succulents that are drought tolerant.

If you do not have legal limitations imposed by your town or homeowner association, there are many other options for an alternative yard. Picture stone paths that wind between ornamental grasses, shrubs, native perennials, or patches of wildflowers. These green spaces will attract pollinators and perhaps some local birds.

Start your lawn replacement with a natural grass-killing process. Cover the lawn with thick black plastic weighed down with rocks or kept in place with stakes and leave it for a few weeks. Prepare your plan while you're waiting for the grass to die—it is best to consult a local environmental landscaper so you know what makes sense for your soil and your local ecosystem.

Attracting Pollinators

Bees may be the best-known pollinators, but this group of species also includes butterflies, bats, hummingbirds, and certain flies. And many of these species are endangered. Given that at least 80 percent of crops we consume are pollinated by bees and other wildlife, this poses a significant risk to our food system. Fortunately, homeowners in urban and suburban areas can directly support the health of pollinators by making changes to their yards.

To start, make sure your planting includes native plants that provide pollen and nectar. Plant a variety to offer different types of flowers and food throughout the growing season. Different colors of flowers will help attract a diversity of pollinators. If you are also growing a food garden (more on that in the next section), making your yard as friendly as possible to pollinators will help ensure successful harvests.

Another way to create a pollinator-friendly yard is to build shelter and nesting sites. This could be a beehive, but even natural features like hedges, compost piles, or a pile of grass cuttings will offer shelter. And add a water feature somewhere near the garden to complete the pollinator ecosystem. Butterflies, for instance, will go to muddy puddles to get salts and nutrients in addition to water.

Building a Garden

One of the best ways you can support a sustainable food system is by growing your own produce and herbs. Turning lawn space into garden space accomplishes multiple goals: getting rid of harmful grass, creating a pollinator-friendly yard, and providing you some of the physical and psychological benefits of spending time outside.

Start by finding out what Plant Hardiness Zone you're in, so you know what will grow well in your climate. Also consider what's harder to find in stores (or more expensive) and what just tastes better homegrown—tomatoes and lettuce, for example. You'll need an area that receives a lot of direct sun but also has some protection from strong wind. For home gardeners, raised beds that are small enough for you to reach all the rows are a more efficient choice than many rows of plants. You can use a garden planning tool to lay out the space and keep track of where specific crops are each year for proper rotation.

Once you've decided what and where to plant, the most important thing to focus on may be soil health. In raised beds, start with a rich compost. You can provide your plants with nutrients by using coffee grounds, eggshells, and banana peels, or even your entire compost pile if you keep one. If you do have grass, use clippings when you mow the lawn (assuming it is organic). And give those weeds a second life by soaking

them in water for a week or two to make weed tea (strain the liquid when it's done to avoid reintroducing weed seeds into your garden) that will make an excellent fertilizer for your plants.

Organic Pest Control

If you have a garden, you will certainly need to deal with pests. Mammals like deer or rabbits can usually be kept out with good fencing, but insects are harder to manage. And there are many common garden pests, from slugs to squash vine borers to beetles. If you don't manage them effectively, pests can destroy your plants. But chemical pesticides hurt pollinators and can be harmful to your health.

There are a number of natural substances to use for general pest control. Diatomaceous earth sprinkled around the perimeter of the garden will kill anything that crawls. Neem oil spray will repel aphids, mites, and other small insects. Even soapy water can help deter pests. Common Sense Home has a detailed list of pests and natural repellents.

Maintaining Grass

If you are not ready to give up on your lawn or your homeowners association won't allow you to replace it, there are still ways to make your lawn care more environmentally friendly. Start by reducing your mowing; this creates a more friendly habitat for bees. And when you do mow, choose an electric lawn mower (or a manual push mower) over a gas-powered one.

Get used to leaving the lawn clippings where they fall; they will fertilize the soil. The most conservation friendly way to keep a lawn is to accept that it will be brown for part of the year. If you do water, water deeply but less frequently. Also consider installing a smart watering system that will monitor weather conditions and adjust your watering schedule accordingly to conserve water. If you can, make sure the grass in your yard is suited for your climate, which will lead to a healthier yard with less care.

Organizations to Support

The **Xerces Society** works to protect pollinator populations by providing education about and advocacy for reduced pesticide use, conservation, and friendly habitats. You can participate in their work by taking the Pollinator Protection Pledge and making changes in your yard and neighborhood.

Find more ways to support the Xerces Society.

The **Ecological Landscape Alliance** (ELA) advocates for environmentally sound landscape practices. They offer educational programming to help individuals implement change and connect individuals with landscapers who promote sustainable practices.

Get involved with the ELA.

Edible Estates, founded in 2005 with a kickoff project in Kansas, creates prototypes of gardens to replace domestic lawns designed for specific regions of the country. They work with local community organizations to create the gardens and document them in public exhibitions that provide education to individuals wishing to emulate them.

Find a prototype garden or order the Edible Estates book.

Actions

- Choose a ground cover to replace your grass
- Follow the Xerces Society's guide for pollinator conservation
- Find out if there's a turf replacement program in your area that will offer rebates
- Get a planting calendar from the Farmer's Almanac to make the best use of your garden

Green Finances

In a capitalist system, voting with your money is a powerful action. Banks make money in part by investing the money individuals store with them. Traditionally, much of this investment has been in fossil fuels, and that remains true: even since the adoption of the Paris Climate Accord at the end of 2015, thirty-three large global banks have together **invested $1.9 trillion in fossil fuel companies**.

Rather than supporting organizations investing in fossil fuels, choose to do your banking and investments with companies that have divested from that industry. Green investment affords you an avenue to support large-scale environmental projects like renewable fuel, energy-saving technology, sustainable agriculture, and business changes that lead to net-zero emissions.

Banking

Green banking involves placing your money with institutions that use their financial power to support the development of clean energy technologies as part of their mission to fight climate change. Green banking is a fairly new concept, first developed as part the 2008 Obama–Biden transition team's efforts to promote the development of clean energy. Following that, advocates of green banking focused on working with states; Connecticut was the first to establish a green state bank in 2011.

As of late 2020, there were twenty-seven green banks operating around the world with investments of over $20 billion in climate-friendly projects such as rooftop solar, vehicle electrification, and decarbonization technologies. For a deeper understanding of green banking, check out Rocky Mountain Institute's report, State of Green Banks 2020.

To get started with green banking, look into your current bank. Do they invest in fossil fuels? If so, it's time to switch. Before you do so, write a letter to the manager of your bank branch asking them to divest and explaining why you will no longer bank with them.

Then choose a new bank that does not support pipelines, is investing in clean energy, and supports a sustainable economy. Many of these banks will be local or community-oriented. Look for a credit union, a B corporation certified bank, or a member of the Global Alliance for Banking on Values.

On the next page, you'll find an example letter to personalize and send to your bank about your unwillingness to continue supporting fossil fuel investments.

Sample Letter to Banks

To whom it may concern: [address to Bank CEO and give a copy to your local branch]

I am writing to inform you that I am withdrawing all my funds from your institution, and closing my accounts. I will work tirelessly to convince others to join me in doing so until your institution ceases investing in pipeline profiteers such as Energy Transfer Partners, Enbridge, Kinder Morgan, and TransCanada.

I refuse to be a silent participant in your decision to support these corporations as they violate indigenous lands with pipelines that carry the dirtiest, most costly and most dangerous fossil fuel -- tar sands.

These tar sands pipelines and other fossil fuel infrastructure desecrate Indigenous lands, violate Free Prior and Informed Consent (FPIC) affirmed in the UN Declaration on the Rights of Indigenous Peoples (UNDRIP), poison communities of color and destroy our waters.

I demand that you stop using my money to fund tar sands pipelines that our communities and planet cannot afford. I will call on neighbors, elected officials, and pension managers to close all accounts with these banks unless you immediately stop financing tar sands pipelines.

Sincerely,
(Your Name)

From the mazaskatalks.org website. Distributed by: Fossil Free California fossilfreeca.org

Investment

Green investing is a form of socially responsible investing that supports companies working to conserve natural resources, support the production of renewable energy, protect clean air and water, build sustainable transportation, and other environmental or sustainability projects. Green investment can take the form of securities, mutual funds, exchange-traded funds, self-directed IRAs, or bonds.

When planning your retirement portfolio, consider including companies in the energy-efficient building sector that are building green infrastructure and transportation, or that are investing in renewable energy technology. Talk to your accountant about your options; however, they may not be aware of such investments, so do some research first. Investopedia has a guide to green investment options by sector. While this guide is a good starting point, you should discuss all options with your accountant before making a decision.

Actions

- Visit Green America's guide to divestment
- Take the pledge with DivestInvest to start investing in climate solutions
- If your bank is with one of the major US banks supporting fossil fuels, divest now (and tell them why!)
- Learn more about specific green investments
- Work with Green Alpha, a partner of the Sierra Club, to set up a green investment portfolio

Organizations to Work With

Every year, fossil fuel companies around the globe inject money into high-cost carbon reserves that they may never be able to extract in an economical and sustainable way, risking both the environment and their shareholders' investments. Ceres works with investors and companies to take action on climate change, water pollution, and other sustainability issues to create an economy that is sustainable for both people and the planet.

Since the US's decision to pull out of the Paris Agreement, Ceres has particularly worked with companies and investors to meet the essential requirements set down in Paris without a federal government mandate.

Donate to Ceres or check out their Get Involved page for other ways to support this work.

If you have investments, you have power to help move the global economy toward sustainability. As You Sow can help you activate that power. They facilitate advocacy by shareholders, undertake legal strategies and challenges, and build coalitions to push companies toward greener and more socially conscious behavior.

Donate to As You Sow, use their Invest Your Values tools to select funds for investment, or sign on to Current Resolutions for companies in which you own stock.

Green banks are financial institutions that focus on financing clean energy and climate-related projects. As of 2020, every dollar invested in a green bank led to $3.60 of investment in the clean energy economy. The Coalition for Green Capital is a great place to learn more. They work around the world to support the creation of green banks and help them efficiently finance environmental projects.

Donate to the Coalition for Green Capital or check out this list of green banks to see if there are options in your area.

Community Resilience

This is an exciting time to be alive, to be an elder, to be engaged on behalf of the future! Urban resilience is a rising movement of local communities all around the world. Public, private, and nonprofit organizations are part of community resilience. For example, since businesses depend on local communities, resources, and infrastructure, regardless of the scope of their markets, they are impacted by extreme weather events, the failure of nations to adopt effective responses to climate change, biodiversity loss, and water crises.

These challenges were recognized as significant private sector risks in the Global Risks Report 2020 from the World Economic Forum. The transition movement is one approach to addressing these risks. Transitionnetwork.org outlines principles for the movement that include: "**We respect resource limits and create resilience**—the urgent need to reduce carbon dioxide emissions, greatly reduce our reliance on fossil fuels and make wise use of precious resources is at the forefront of everything we do."

What follows in this section is an overview of many community resilience topics, including public health, natural resource conservation, urban design, climate literacy, and other matters with an eye toward accessible engagement for Gray-Greens in community-scale challenges and opportunities. We have many chances to be active locally and to make a difference in our communities. As you consider these interconnected systems, refer to Wendell Berry's seventeen rules for a sustainable local community.

Humans and Nature

When we neglect to notice the ways we interact with the natural world every day, it is easy to forget how entwined the health of our bodies is with the health of the Earth. Meaning-making systems such as religion carry messages that help remind us of our call to be good stewards, but it is also helpful to understand the connection between our own bodies and the elements.

Daily living conditions and interaction with the natural environment can affect physical and mental health. Although the burden of poor environmental health may be seen in less developed countries, there are many problems that impact people living in the United States.

An understanding of these issues can help us promote positive environmental and human health at a community and individual level.

Air

For instance, air pollution and ground-level ozone, called smog, can make asthma and allergies worse, especially in children and elders. High concentrations of small particulates can reach into the deepest part of the lungs, impair lung growth, and cause asthma and cancer.

As global climate changes lead to longer pollen seasons, those with allergic sensitivities and asthma are suffering increased negative health effects. Smoke from wildfires is also an increasingly prevalent air pollutant, causing respiratory and cardiovascular problems. We can each take action to improve the air quality in our own neighborhoods.

Water and Earth

Water and soil quality also affect our health. Water quality is crucial, from the water that we drink to the bodies of water that we use for recreation. The natural system of watersheds and municipal water systems form a complex water environment that requires monitoring on many levels. Pools, lakes, rivers, and oceans can become contaminated with harmful chemicals, bacteria, or other organisms. Climate scientists expect that changing temperatures will cause increased precipitation and flooding, which will increase the level of exposure to toxins used on crops and livestock in the water supply. Waterborne illnesses will likely increase as well, due to higher water temperatures providing a more hospitable environment for microorganisms.

Food grown with pesticides can have a negative impact on your health. In particular, fumigants can be hazardous not only through direct consumption, but also to people living in communities surrounding areas of fumigant application. Numerous pesticides can be found in your diet, and certain types of fruits and vegetables have higher concentrations than others. Children can be particularly susceptible to the negative health impact of pesticides, but they can be protected with diligence and advocacy.

In addition to its impact on human health, the widespread use of pesticides in agriculture can degrade soil quality and decrease soil biodiversity. Pursue strategies to promote sustainable agriculture and ensure a healthy future for our planet and future generations.

Green Space and Well-Being

A recent study of data from over 290 million people globally has shown that spending time in nature not only has psychological benefits but wide-ranging physical health benefits as well. Exposure to green space reduces the risk of type II diabetes, cardiovascular disease, and high blood pressure, among other conditions.

And yet, cities fundamentally require urban landscapes to function—the concrete streets, buildings and infrastructure we are all familiar with. This means that living in a city, away from nature, takes a toll on people. But there are many ways to incorporate more green space into cities, from greenways to city parks to urban gardens. And there are numerous benefits to doing so.

Urban forests, for instance, provide not only green space but also food to local communities. They reduce energy use by providing shade in the summer and wind breaks in the winter, reduce stormwater runoff, remediate soils, and provide animal and plant habitats. And urban parks in particular are important. They provide easy access to natural space, offering health, economic, and environmental benefits.

While government-led initiatives are important, so are grassroots efforts. You can get involved by starting an effort to build a community garden or create an outdoor community space. Find tips on how to get started in The Renewal Project's article.

Organizations to Support

Over the last three years, **Earthjustice** has filed more than a hundred lawsuits to uphold environmental protections that the federal government would like to limit or abolish. Their lawyers go to court to protect wild spaces, ensure healthy communities, and enforce a transition to clean energy. Recent victories include closing loopholes that allowed Pennsylvania coal plants to pollute the air and ensuring utility companies in Montana cannot discriminate against solar power projects.

Donate to Earthjustice, host an Earthjustice event, or follow their Action Alerts for ways to make your voice heard.

Access to natural spaces has been shown to lower stress and improve attention, memory, and impulse control, but with 80 percent of the US population living in urban areas, that access is often limited. **Nature Sacred** sees access to natural spaces as a basic right and works to create small, public green spaces in neighborhoods and institutions. They create resources to support communities in the development of green space and publish research on the effects of green space on community resilience.

Donate to Nature Sacred or follow their step-by-step guide to create a Sacred Place in your community.

Agriculture and food account for more than a quarter of global greenhouse gas emissions and 70 percent of freshwater use. Ecologically sustainable farming practices are key to solving many of our current

Actions

- Visit AirNow to find out how you can contribute to cleaner air
- Take steps to reduce your exposure to air pollution
- Support farmers that use sustainable agriculture practices
- Read AARP's guide to creating parks and public spaces to get started on greening your community

environmental crises. The **Ecological Farming Association** is an educational organization that helps create equitable and environmentally sustainable farms and food systems, with a focus on small and family-owned farms.

Donate to the Ecological Farming Association.

The World Health Organization reports that 1.7 million children under five years of age die each year due to environmental risks like air pollution, unsafe water, and inadequate sanitation. **Our Children's Earth Foundation** advocates for children's access to clean air and water through education, legal action, and community empowerment with a particular focus on government accountability. They also fund documentary films related to the environment and human rights in an effort to educate and inspire action.

Donate to Our Children's Earth Foundation.

Climate Literacy

Climate patterns are changing with noticeable local impacts. Preparing for these impacts is key to community resilience. Climate literacy is a framework that focuses on understanding how you and others in your community might participate effectively in preparing for a resilient community in the face of climate variability.

Water Resources

Water is a precious resource and will become increasingly so as normal patterns of rainfall, streamflow, and flooding continue to change in coming years. In a changing climate, higher sea levels and more frequent storms will combine to increase the extent, frequency, and duration of floods in many places both coastal and along rivers. Take stock of your vulnerabilities by looking at how your economic centers, population centers, sewage systems, power grids, and fragile coastal ecosystems will be affected.

Coastal Risks

Coastal communities face particular challenges in climate change. While coastal areas have always been at risk of flooding, the risk increases with global warming. Factors such as more severe storms, shoreline changes, and sea level rise—individually and in combination—make coastal flooding more likely. Increased flood risks include floods in places not previously prone to flooding, as well as more severe flooding in already flood-prone areas.

As of 2014, **127 million people in the US** (40 percent of the population) live in coastal counties. Given that high tides are projected to increase up to six and a half feet in the next century if emission rates continue as they are now, flooding is a serious concern for coastal communities. Even with significant reductions in greenhouse gases, rise is predicted to be at least eight inches.

In addition to roads, homes, and businesses, infrastructure serving the entire community is also at risk from flooding. Police and fire stations built in low-lying areas cannot operate if they are flooded, and must be relocated. Water and sewer systems are especially vulnerable to rising waters, and are expensive to retrofit or rebuild further inland.

Coastal communities which plan for higher sea levels and increased flooding will adapt and prevent some crises. It is important to remember that **preventive measures are more cost-effective than disaster response**. Many communities are taking measures to adapt by mapping the local flood risks and mandating

that buildings be elevated and built to withstand flooding. Roads, bridges, and utilities are being identified for rebuilding to new standards in order to withstand rising water. In some places where flooding has repeatedly occurred, homes and buildings are being removed.

Food

New temperature patterns and seasonal changes are affecting local growing seasons, impacting agricultural zones, and making some land completely unusable for food production. Extreme weather events and fires are also disrupting harvesting, processing, and distribution of food. In order to create a food network that can handle these changes, your local community may want to research the effects of climate variability on local food supplies and consider local food resilience practices. On an individual level, take a close look at where your food comes from and how you can reduce waste.

Physical Effects of Climate Variability

Extreme heat, extreme weather events, and increased air pollutants will all affect human health directly, as people struggle to deal with the physical effects of climate change. Older adults and children are particularly vulnerable to the adversities of extreme weather events. Building health systems that serve vulnerable human populations during weather disruptions from climate variability is crucial on a local scale.

Actions

- Learn how to conserve more water inside and outside your home
- Read these resources from the Georgetown Climate Center on how communities are preparing for sea level rise and flooding and identify what you can implement in your own community
- Refer to Sea Level Rise's resources for individual, local, and state/federal solutions to risks to coastal communities
- Find out how to reduce food waste at home and in your community
- Follow the US Climate Resilience Toolkit's steps to resilience framework

Organizations to Support

In the US, communities of color show markedly less urban climate resiliency for the decades ahead. Social inequity exacerbates the effects of climate change, costing lives, livelihoods, and billions of recovery dollars. **The Institute for Sustainable Communities** empowers people across the world in disenfranchised communities to address climate change and transform their own communities by partnering with local organizations and leaders.

Donate to the Institute for Sustainable Communities.

With the Arctic currently warming at almost twice the global average, some outcomes of climate change, such as rising sea levels and increasing severe weather, are unavoidable. The **Climate Justice Resilience Fund** addresses this reality, and the inequities in how different communities are affected by climate change, by helping women, youth, and indigenous communities identify and implement solutions and adaptations needed in their communities.

Sign up for their newsletter to learn more about their work.

With hundreds of new projects each year, the RAND Corporation is known for advising policy makers through rigorous research and analysis. At the **RAND Climate Resilience Center**, a team of analysts focuses on coastal, urban, and community resilience as well as water resource planning. From flooding prevention in Louisiana to green infrastructure in Pittsburgh to water resource planning for California, RAND CRC's research supports communities in the face of deep uncertainty about our changing climate.

Donate to the RAND Corporation and subscribe to the RAND CRC Newsletter to stay on top of important issues.

Waste Systems

Responsible disposal of waste in cities, including food, plastics, electronics, and nonrecyclable products, can be difficult in many ways. Some common challenges at the municipal level include towns not having the funding to support pickup systems other than trash, higher recycling costs in recent years, and citizens' lack of knowledge about what to put in the recycling bin. Given that the US produces 239 million tons of waste per year (making it the most wasteful country, based on per capita rates, in the world), improving our waste management is critical.

Some cities have established either drop-off compost centers or local compost pickup as part of their waste management systems. The idea is very simple: you gather your compostable items throughout the week, place them in the bins provided by the cities, then set them at the curb for pickup or drop the bins off at your local center.

In California, early involvement in composting programs lowered the state's solid waste tonnage by 50 percent. The city of Los Angeles surpassed the 50 percent reduction by regulating and collecting their green waste with a system of curbside collection bins, three recycling centers to handle compost, and processing organic materials to make high-quality compost for community-wide use.

Actions

- Set up a home compost system
- Find a local composting pickup organization
- Use Earth Day as a reason to talk to your municipality about changing waste stream practices

The concept of zero waste has gone from theory to practice in recent years, with cities such as New York, San Diego, Austin, Asheville, and Boston (and some states) announcing plans to start diverting waste from landfills through recycling and composting programs with the goal of eventually sending no more garbage to landfills. The EPA has compiled resources for communities that want to transform waste streams.

While popular in some major cities, composting and other waste disposal alternatives are not yet common throughout the United States. Your community's annual Earth Day celebration may provide a good platform for eliciting interest in community composting and for asking local leaders to establish a program.

The EPA website has information for participating in Earth Day each year on April 22. On this day community members in many places participate in community cleanups—gathering recyclable items such as plastics, glass, and compostable items. This is a great way to move toward establishing community recycling and

composting in your local area. See these resources from the EPA about how different communities have changed their waste systems to reach 50 percent or more diversion from landfilling and combustion by a specific year through "reduce and reuse" as well as recycling and composting.

Organizations to Support

Of the 70 billion plastic water bottles purchased each year in the US, three out of four end up in a landfill. The Container Recycling Institute focuses on improving those statistics by moving more plastic, aluminum, and glass containers into the recycling stream. Their work includes advocating for bottle deposit legislation and researching the effectiveness of different recycling systems.

Donate to the Container Recycling Institute.

Every industry needs innovation and education to grow. The **Composting Council Research and Education Foundation** supports innovation in the composting industry through educational programs, funding for research projects, and International Compost Awareness Week (the first week of May).

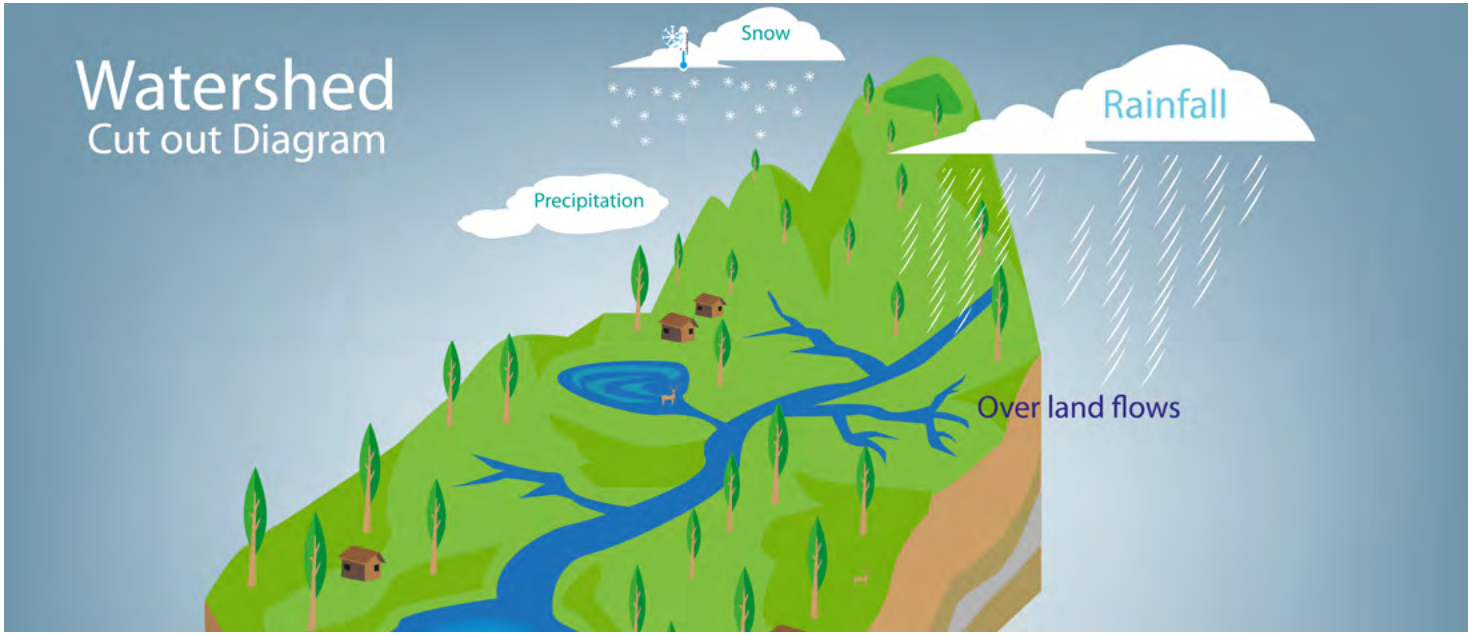
Donate to the Composting Council Research and Education Foundation or take part in an International Compost Awareness Week event in your community.

A recent report by The New School showed that burning waste for energy emits more greenhouse gases than burning coal. **Gaia** is an alliance of organizations committed to changing waste system practices to reduce waste incineration and achieve zero waste. They work around the world to improve waste stream systems and advocate for the rights of workers in the waste and recycling industry.

Donate to Gaia and watch their Action Alerts page for ways to support legislation and other initiatives.

Zero Waste is the principle that, through changes in production, consumption, and recycling, all communities can create a sustainable world without waste. **Zero Waste USA** (as well as the Zero Waste International Alliance) creates resources, strategies, policies, and training opportunities to support individuals and communities in moving to a zero waste model.

Use Zero Waste's "How Low?" tool to change your own waste practices or request a Zero Waste Curious presentation in your community.



Water Systems

The first step in thinking about water is to understand the hydrologic cycle, which involves rainfall, evaporation, and cloud formation, as well as overland runoff and groundwater that drain into the ocean. View the image to see this system.

Watersheds

A watershed is the area of land that drains to one specific point, such as a lake, bay, ocean, stream, or river. Everyone lives in a watershed. If rain at your location would flow into a nearby stream, even if that stream is dry most of the year, you are part of its watershed. The EPA has a tool called Surf Your Watershed that helps you locate and understand the conditions of your watershed.

In addition to the water you drink, your watershed provides water for other species—plants and animals. It is crucial for water managers and the public to remember that water is required for every living thing, from the tiniest organisms to the largest. All animals need water to drink and to support the vegetation for their habitat and food source.

If there is a drought, or if we remove too much water and make a river or stream dry, fish and other aquatic organisms cannot survive. Similarly, plants and trees require a certain amount of water to grow. When a wetland is drained, its vegetation will change and the birds and animals that depend on the trees, plants, and moist environment will be forced elsewhere in order to survive.

To learn more about your area's water resources and get involved in your watershed, join a local watershed or water protector group. These groups celebrate their waterways with varied actions such as sponsoring boating and fishing recreational activities, monitoring water quality, organizing trash cleanups, and building and maintaining trails. Members act as advocates for protecting and improving the nearby rivers and land.

Changing Water Resources

Climate scientists predict that normal patterns of rainfall, streamflow, and flooding will all change in coming years. The severity and frequency of both drought and flood is expected to increase, as the Northeast United States receives more and more precipitation, and the Southwest receives less and less. Spring snowmelts are also occurring earlier in the year. The conditions that affect rates of evaporation, such as air

temperature, solar radiation, wind, humidity, and water availability, are all undergoing change, which in turn affects soil moisture, groundwater recharge, and runoff.

Floods of all kinds are expected to increase across certain regions of the US, including flash floods and floods in urban areas. Places that have large areas of impervious surfaces, such as cities, will also have a lot of runoff in floods which can overwhelm old infrastructure and water storage facilities.

On the other hand, areas experiencing drought are already struggling to provide water for their communities. Water shortages cause a wide range of economic effects as well, as farms have difficulty watering their crops. Taking steps like purchasing desalination equipment and thinking ahead about how to prepare for drought situations increases the resiliency of communities in the face of drought.

While some impacts of changing water resources are obvious, like the increased difficulty of getting water to residents in a community, there are a wide range of effects that might not be clear at first. Water impacts energy, from the standpoint of both production and usage. Water is involved in generating energy in hydroelectric dams, is used to produce steam in thermoelectric power plants, and to cool reactors in nuclear power plants. All of these functions will be affected as our access to water changes. Water treatment and distribution also requires energy at all steps of the process, and will require more energy as water becomes more difficult to access in some areas.

Water resources also impact the ecosystems around us that we rely upon for food, wildlife habitat, protection from flooding, and so much more. Both too little and too much water can have huge impacts on ecosystems as we know them today. As we adapt to new climate conditions, it is important to keep in mind how the environment we live in will change as well.

Impermeable Surfaces

In urban and suburban areas, the water we use in our homes and businesses is usually provided by a water utility. Reservoirs, rivers, and wells are common sources, which are treated to make the water safe for drinking before it is delivered to customers through a piped network.

Impermeable surfaces are barriers to natural water flow commonly associated with buildings and roads. Street pavement, parking lots, driveways, and sidewalks, as well as building roofs, are all impermeable surfaces. They are important because the flow of water from these surfaces can contribute to pollution as stormwater carries pollutants into waterways.

Pollutants from stormwater can include:

- Oil, grease, and fluids from vehicles
- Fertilizer, herbicides, and other garden chemicals
- Bacteria from pet waste and failing septic systems
- Soil from construction sites
- Soap from equipment washing
- Accidental spills and leaky containers
- Street litter, such as fast food wrappers and drink containers

There are ways we can reduce water runoff at home as well as community development initiatives that can help.

Actions

- Explore Surf Your Watershed to understand your local water system
- Learn how pesticides affect water quality
- Implement water conservation methods at home to support a healthy water system

Organizations to Support

Clean Water Action was founded during the campaign to pass the Clean Water Act in 1972, an important first step in protecting our watersheds, and the organization is still central to protecting water systems today. They run campaigns in thirteen states and at the national level to strengthen health and environmental protections around water, oil and gas, climate change, toxic chemicals, and waste.

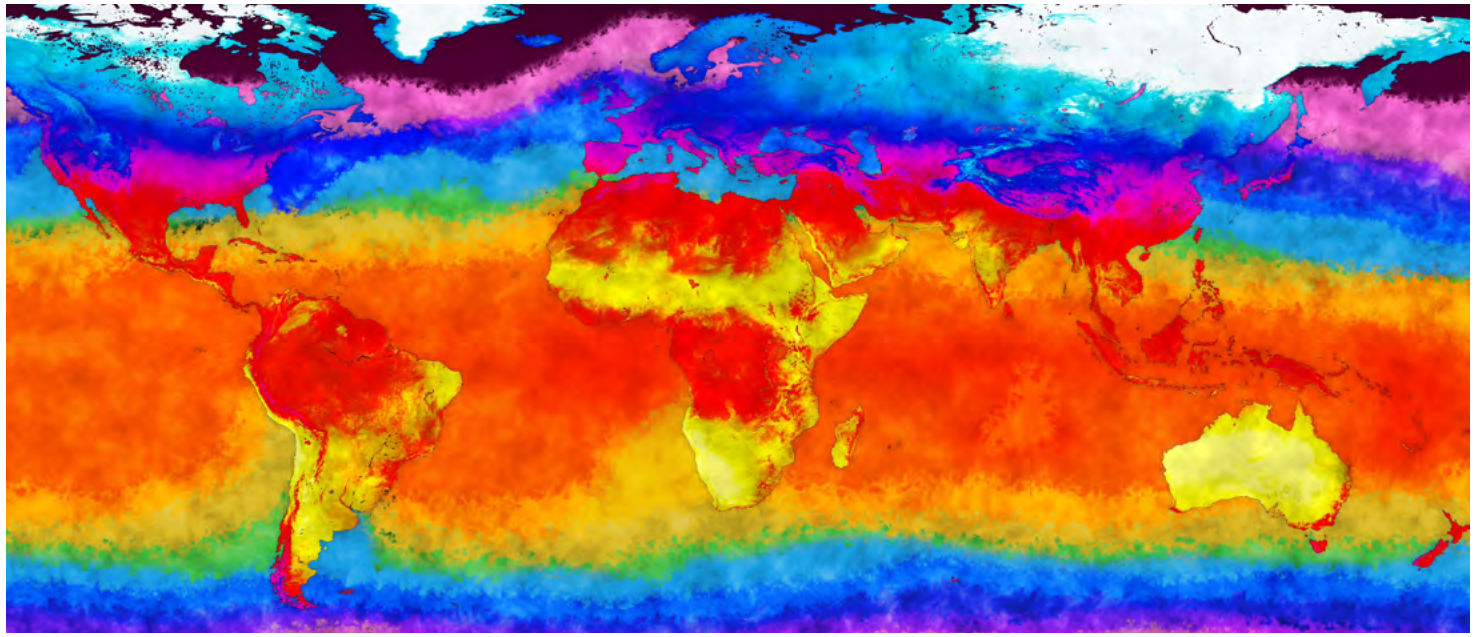
Donate to Clean Water Action, use their Take Action page to contact stakeholders, or volunteer for one of their campaigns.

The average American adds about 125 gallons of wastewater to our water treatment systems every day. The Water Environment Federation has worked with water professionals for more than ninety years to improve water quality around the world, protecting both the environment and the public. They advocate for changes in the law, provide training and certification in green infrastructure, support leadership and innovation from new water professionals, and publish advocacy materials like their children's book, Why Water's Worth It.

Check out their free resources or show your support by purchasing from their marketplace.

Since 1997, Living Lands & Waters has removed more than 10 million pounds of trash from US rivers with the help of more than 100,000 volunteers. As a smaller organization, Living Lands & Waters operates a barge that travels the country for nine months of the year removing, sorting, and properly disposing of trash in our rivers.

Donate to Living Lands & Waters or check out their schedule to volunteer at a clean-up event near you.



Science and the Uncertainty Principle

When scientific findings are released, people often focus on "scientific uncertainty" instead of on the usefulness of those findings for the public. Within the framework of science, the uncertainty principle refers to the limits of knowledge, rather than indicating distrust of the system. The awareness of these limits has motivated scientific fields to require increased transparency, confidence, and credibility

This includes:

- Transparency about what is known and what is not known, which can be communicated in numbers, data, charts and graphs, and in confidence intervals.
- Confidence in findings, which is supported by requirements that report how much statistical risk exists in the data.
- Credibility coming from the requirement that findings are shared among peers and systematically reviewed by colleagues.

The limits of knowledge in science might be more accurately referred to as "levels of confidence"—high confidence as in "textbook science," intermediate as in "a growing body of evidence," and low as in "the jury is still out." It is important to note that low confidence findings may result from research on critical questions well worth exploring with as-yet-uncertain answers, and this uncertainty in the beginning stages has been present throughout the history of science.

Science for Understanding and for Utility

Scientists view their research on a continuum from "pure" research for the sake of understanding how the world works to "applied" research for technological innovation or problem-solving. Of course, ecology and the environment are among the scientific fields that are keenly interested in a combination of the two, sometimes referred to a Pasteur's Quadrant, or "use-inspired basic research" that aims to both advance basic knowledge and seek solutions to human problems.

The Intergovernmental Panel on Climate Change is an group of scientists convened to both extract useful information from basic research and frame research questions to deliver useful information for problem-solving. The Union of Concerned Scientists is an organization specifically focused on using available scientific knowledge to create and advocate for policy that supports sustainability and equity.

Roles Scientists Play in Public Policy

Scientists have a critical role to play in bringing evidence-based information to decision makers in government and business. When they draw from local and regional research, they are particularly helpful sources of information to elected officials. Scientists themselves are professionally required to be clear about the basis for their public statements about scientific findings. The Union of Concerned Scientists provides a helpful typology of roles scientists play in public policy discussions, as follows:

- Pure scientist: reports findings and describe process of data collection and analysis.
- Science arbiter: weighs various scientific points of view.
- Honest broker: promotes values and knowledge at a table alongside business and other interests.
- Issue advocate: takes a position on action based on values, findings and interests.

Actions

- Share scientific resources community members can use to understand the real-life ramifications of climate science
- Talk to your local government about starting a program like the American Association for the Advancement of Science Local Science Engagement Network

Scientists as Public Speakers

In a public audience, at a legislative hearing, or at a media event, scientist speakers need to be clear about their individual scientific expertise. This clarity includes making a distinction between discussing findings from their own field and discussing findings from other scientific fields.

An effective speaker will also deliver a couple clear takeaway messages for the non-scientist audience. If you are interested in science related to local ecological or environmental policy issues, you might encourage local groups to feature scientists whose research is conducted locally, where they have the most credibility with policy makers.

Organizations to Support

Widespread scientific literacy ensures that science remains at the forefront of decision-making in our society. The **Society for Science and the Public** works to expand science, technology, engineering, and mathematics (STEM) education to inform, educate, and inspire young people about the role of science in our world. They run science and engineering fairs, publish newsletters, and provide grants to support science educators.

Donate to The Society for Science and the Public, become a member to receive their Science News publication, or volunteer at the Regeneron International Science and Engineering Fair.

The **Earth Institute** at Columbia University includes more than two dozen research centers tackling topics in water, climate, energy, urbanization, global health, ecosystems, and more. They both support established scientists committed to the environment and train the next generation of scientists in the field. You can learn more about their work through Earth Institute Live Features, designed to help global citizens understand what they can do to support sustainability and address the climate crisis.

Donate to The Earth Institute.

In a single month in 2020, the **Union of Concerned Scientists** 1) won a lawsuit forcing the EPA to include top environmental scientists in its advisory committees, 2) published research proving that ride-hailing services increase emissions by nearly 70 percent—leading Lyft to plan a transition to electric vehicles by 2030—and 3) pushed through sales standards in California that require manufacturers to increase the number of electric trucks sold each year. The organization fights for science, democracy, justice, integrity, and action.

Donate to the Union of Concerned Scientists or use their Take Action page to send letters to stakeholders on topics that are important to you.

Generative Advocacy

Advocacy aims to influence decision-making within political, economic, and social systems and institutions. Advocacy opportunities regarding environmental and ecological issues and concerns emerge in a variety of institutional arenas—public and private—and locally to globally. In the 21st century we have both a rich legacy of strategies for advocacy and an urgent need to make great use of them.

Many advocacy efforts are best undertaken across generations, races, social classes, religions, genders, and physical abilities. Occasionally, a specific category of people is uniquely suited to take the lead on advocacy while still benefiting from allies. As elders, we seek possibilities for our unique advocacy to arise in voice and action, finding occasions to stretch our aspirations for the future and solid grounding in our intentions to leave an ecological legacy for future generations.

Citizen Science

Science is one way we can learn more about the universe around us and prepare for the future. Citizen science is science done with help from volunteers. This often takes the form of people in the community helping scientists with data collection. This can be very local, like people gathering data on the nutrient levels of a nearby stream, or much broader in scale, such as having volunteers classify galaxies or document bird migration patterns. Citizen science also often has the goal of bringing scientific knowledge and involvement to the community by getting ordinary people involved.

The most obvious benefit is that citizen science gives scientists access to huge amounts of data that would be very hard for them to get otherwise. Scientists' ability to process, analyze, and report the increased amount of data is also aided by citizen science. This expansion of resources allows scientists to take on projects that would not likely be possible otherwise.

Citizen science allows people who are naturally curious about the world around them to harness that energy for scientific progress while satisfying their own interests. It also has a positive effect on the policy-making process. If people are informed and engaged in the world around them and the scientific process, they can influence science policy for the better.

Citizen Naturalists

Citizen science can be especially helpful for environmental science. Citizen naturalists are people who are concerned about the environment and therefore volunteer their time to make observations that will help in wildlife preservation and habitat protection.

Some projects help you take direct steps to restore habitats or monitor their restoration. The Great Sunflower Project, for instance, gives people resources to plant sunflowers and observe the effects of pesticides on pollinators, track the number of pollinators, and evaluate and improve pollinator habitats.

Citizen naturalists can also volunteer to inform members of the community about how to make their area a good place for wildlife. Citizen science is a great way for you to get directly involved in making the world and your local community a better place for your children and grandchildren.

Become a Citizen Scientist

Citizen science is easy to get involved with. Websites like SciStarter list hundreds of projects, so you can pick one that interests you. Local parks, Audubon Societies, and wildlife projects often have ways for citizens to get involved in local projects. Citizen science is fun, lets you contribute directly to research that will help us prepare for the changing future, and ensures that we preserve the world we love for the generations after us.

Actions

- Join the ISeeChange project to help provide evidence of climate change to scientists
- Visit SciStarter to find science projects that interest you
- Volunteer for one of these projects listed at Scientific American
- Find a CitSci.org project in your area
- Explore what you have to offer to working groups and association teams at CitizenScience.org

Letters to the Editor

Writing letters in response to articles in widely circulated newspapers is a great advocacy tool. After you write letters to your members of Congress, sending letters to the editor can achieve other advocacy goals because they:

- reach a large audience,
- are often monitored by elected officials,
- can bring up information not addressed in a news article, and
- create an impression of widespread support or opposition to an issue.

Keep it short and on one subject. Many newspapers have strict limits on the length of letters and have limited space to publish them. Keeping your letter brief will help ensure that your important points are not cut out by the newspaper.

Make it legible. Your letter doesn't have to be fancy, but you should use a typewriter or computer word processor if your handwriting is difficult to read.

Be sure to include your contact information. Many newspapers will only print a letter to the editor after calling the author to verify his or her identity and address. Newspapers will not give out that information, and will usually only print your name and city should your letter be published.

Make references to the newspaper. While some papers print general commentary, many will only print letters that refer to a specific article. Here are some examples of easy ways to refer to articles in your opening sentence:

- I was disappointed to see that The Post's May 18 editorial "School Vouchers Are Right On" omitted some of the key facts in the debate.
- I strongly disagree with (author's name) narrow view on women's reproductive rights ("Name of Op-Ed," date).
- I am deeply saddened to read that Congressman Doe is working to roll back affirmative action ("Title of Article," date).

Be timely. Your letter will become irrelevant very quickly. You need to get it into the very next edition. If your letter relates to something in Monday's paper, send your letter to the editor before 1:00 p.m. on Monday. If you cannot send your letter as an email, don't bother. In some cases, if you miss your chance to comment on the original story, you may be able to comment on the ensuing letters or columns (i.e. you can comment on the commentary). But earlier is always better.

Be bold. If you are taking the time to write a letter, surely you have an opinion. State it in no uncertain terms right up front. In life, seek balance and understanding. In letter writing, don't.

Be funny. Funny letters get published. Humor is one of the most effective ways of communicating, ask any advertiser. Send funny letters to the editor.

Be easy. Editors don't want to waste any time. Make it easy for them to publish you. There are many ways you can help them. Follow their rules regarding letters (check the paper's website). Spell everything correctly.

Actions

- Identify articles in widely read papers and respond to them using our tips

Contacting Representatives

The Constitution gives all citizens the right to "petition the Government for a redress of grievances." Our representatives in Congress work for us, and speaking to them directly about issues that concern you is a powerful and easily accessible advocacy tool. We know about large lobbying organizations, but individuals can lobby our public officials as well.

You have some options: sending letters, emailing, calling, and showing up in person. If you can, choose calling and in-person meetings over email or letters; the latter can be deleted or tossed in the recycling, but phone calls require the attention of staff members. The more calls they receive on a certain topic, the more incentive they have to bring it to the attention of the legislator. And in-person meetings, of course, convey how important you find the topic and give you a chance to have a deeper conversation about it.

Prepare your comments ahead of time; this will make you more effective. If you're nervous about speaking on the phone, write a script. If you are not sure how to phrase something, do some research to find messages put together by nonprofits working on the issue.

Be specific. Don't simply state what you support or oppose; ask for a vote in a certain direction or support of a bill. Or, ask what your representative plans to do about the issue, if it is too early in the process for one of those actions.

Back your opinion up with facts. Again, reading up on the available materials on a given issue for background information and research that has already been done will make your case stronger. And you may just educate your representative on the matter.

Actions

- Find your House representatives here and your senators here
- Use the links on this page to find contact information for other elected officials
- Need some talking points? Choose an environmental issue on YouLobby.org for help

Be respectful. The staff member you speak to has a lot of power in this situation to either pass your message on or discount it entirely. Express your appreciation of their time and invest in developing a relationship with them. Tell them where you're calling from, too, so they know you are a constituent.

Time your communication. When a vote is imminent, a certain issue is more likely to be on the minds of the staff and representatives.

Call the local office rather than the Washington office. This is especially true if you want to talk about something that affects your community, but even for larger-scale topics it can be a good idea, because local offices often have more staff support, and staff in local locations are more focused on working with constituents. And, of course, if you plan to meet in person, this is the location you will use.

Protesting

In this era of digital communication, in-person presence is still a powerful tool. Marches, sit-ins, rallies, and other events provide avenues to use our bodies and our voices in resisting environmental injustice.

Civil disobedience, a concept popularized by Thoreau in his 1849 writing "Resistance to Civil Government," is founded on two ideas: the people give the government its authority and can thus challenge that authority; and we must hold justice higher than the laws written by the government. The action of intentionally disobeying laws or disrupting public space in protest of laws has a strong history, beginning when Mahatma Gandhi employed it in the early twentieth century to demand civil rights in South Africa. Our own country's civil rights movement relied heavily on civil disobedience as well, and it continues to be one of the most powerful actions citizens can take in challenging unjust laws.

As elders, we often have the time and financial security that younger generations do not to give to such actions: we will not lose our jobs and can risk being arrested. We can use this privilege to show up and lend our presence to the younger generations often spearheading these events.

Protest events happen on all scales, from large events such as the Global Climate Strike in September 2019 to local gatherings that speak out on water protection or other specific issues. To find out about environmental protests happening in your area, use Indivisible's Find an Event tool. To be as effective and comfortable as possible at a protest, follow these tips:

Dress for comfort. Wear your walking shoes and pack layers of clothing so you can stay warm as the temperature changes.

Pack water and snacks. You will likely be out for many hours, between getting there, marching or standing, and getting home, so prepare for this. Pack extras to share, because someone always forgets.

Know the plan. Check out the protest route ahead of time and the schedule. Aware protesters are more effective than those who need to be told what's happening.

Stick together. Bring a friend or two for solidarity, and hang close to the larger group as well. Don't worry about stopping at crosswalks (as long as you are being safe)—the idea is to disrupt public space.

Bring your chanting energy. Civil disobedience is about being heard, so be ready to speak up. You can clap and bring noise makers as well, but join in what the crowd is doing. There will be people leading chants, which are often call and response. They will direct their voices to you, and you should direct your voice out into the public space around you.

Prepare for the worst. Pack with you a half-and-half mix of water and alcohol-free Maalox, which is for rinsing pepper spray from your eyes and other mucous membranes. And have a lawyer's number written on your arm.

Know your rights. The American Civil Liberties Union provides a good guide to protester rights. Read this ahead of time and come prepared to document anything that may happen to you or a friend.

Do what you are able. Not everyone can walk the streets, and that's OK! If marching is beyond your ability, look for rallies or sit-ins. Or spend your energy contacting representatives and speaking at public hearings on local issues.

Actions

- Sign up for newsletters from local environmental organizations to find out about upcoming actions
- Form a group of peers who will attend events with you
- Find out about protests and rallies on Indivisible.org

Deep Gratitude for Nature

As Gray-Greens we have perspective on the ways human communities are interdependent with one another, with other species and with the elements that support life. We are called as elders to witness and serve the symbiotic webs of life for our benefit and that of future generations, to embrace the movement toward sustainability and community resilience. We appreciate how our lives as elders are enhanced as we find meaning and purpose in cocreating resilient communities in our neighborhoods, cities, and towns.

We come to understand the web of life through different spiritual and religious belief systems, which each hold their own calls to live in harmony with our natural systems. This section gives an overview of the doctrines of Catholicism, Christianity, Judaism, Islam, Buddhism, and Hinduism as well as the belief system of Humanism as these traditions speak to our relationship and responsibility to Earth.

Buddhism

> *Aware of the suffering caused by the destruction of life, I undertake to cultivate compassion and learn ways to protect the lives of people, animals, plants, and minerals. I am determined not to kill, not to let others kill, and not to condone any act of killing in the world, in my thinking, and in my way of life.*
>
> *— The First Precept*

Buddhists believe that all things are interconnected. Nothing lives or dies in isolation, and the very idea of an autonomous existence is an illusion: we are intimately connected to the state of our environment. As such, the First Precept of Buddhism is to practice nonviolence and loving kindness toward all things, living and nonliving. Protecting human life requires us to protect all other kinds of life. Therefore, we have a moral responsibility to protect our environment.

Mindfulness

The Venerable Thich Nhat Hanh writes, "Buddhists believe that the reality of the interconnectedness of human beings, society and Nature will reveal itself more and more to us as we gradually cease to be possessed by anxiety, fear, and the dispersion of the mind." In order to act with compassion, we must train ourselves to be mindful. The Buddha said that the mind is the root of all actions. In order to be truly nonviolent, one cannot kill in the mind. In order to feel compassion, we must be aware of the suffering around us. Therefore, we practice mindfulness so we can become increasingly aware of the ways in which we are connected to everything around us.

Nature as Teacher

> *"Trees and vines, for example, can all reveal the true nature of reality. With wisdom there is no need to question anyone, no need to study. We can learn from nature enough to be enlightened, because everything follows the way of Truth."*
>
> *— Ajahn Chah*

The Buddha taught that understanding the natural world will show us the Truth of the world. The soil, trees, and air are all part of one ecosystem, all affecting each other all the time. From this we can learn that one's own existence is not more important than anyone else's, for we are all connected. In nature we can also see the suffering and transience that is the reality of all life. If we treat nature as a teacher and a friend, we give up the desire to control it.

Nature as a Spiritual Force

The survival of the forest is necessary for the continued balance, harmony, and morality of the environment and the world. We have a duty to protect that balance, but we can also draw upon it for spiritual strength. Retreating into the natural world reminds us of the fragility of our attachments and our worldly possessions. In the solitude and quiet of nature, we can develop our mindfulness and deepen our understanding of the natural rhythms of life.

The Simple Life

By becoming mindful of ourselves and our lives, we begin to see that we are the root of the environmental crisis. Greed and craving will only cause us to be unhappy. It is only through moderation that we can achieve tranquility and balance. If we cultivate a reverence for nature and treat it with gentleness, we will move away from the destructive mindset that causes us to take more than our due.

Actions

- Read more about the above concepts at Environment and Ecology
- Find Buddhist statements and other resources on ecology at Yale's Forum on Religion and Ecology

Hinduism

> *Let there be peace in the heavens, the Earth, the atmosphere, the water, the herbs, the vegetation, among the divine beings and in Brahman, the absolute reality. Let everything be at peace and in peace. Only then will we find peace.*
>
> *— Atharva Veda*

There are three grand concepts from Hinduism on the subject of ecology. Hinduism instructs us to have reverence for all things and for all living beings: all is part of God, all is considered divine, and all is to be treated with respect, compassion, and love.

Since everyone and everything is an emanation of the Divine, the Hindu perspective can help us embrace and see our planet as one great village that we all live in. This is similar to the Gaia Theory, in which the Earth is seen as a giant, self-regulating organism seeking to create optimal conditions for life.

Since we are all sacred and we are all children of Mother Earth, we seek to enhance the common good by balancing our individual needs with those of the extended family of life—to follow the Dharma. The Hindu tradition describes Dharma as our sacred sense of duty to create the best possible conditions of life for ourselves and everyone else.

Karma

The concept of Karma ties together these three grand concepts. Karma helps us to understand that our current condition is the combined product of past actions—in this life and in previous incarnations—along with actions that we take today. In this way, we are constantly creating our future in the months, years, decades, and even lifetimes to come.

Clearly, our actions influence our family and community, today and into the future. In the law of Karma, by which the effects of our deeds return to us, lies a deep repository of ecological thought and practice.

Dr. Pankaj Jain, in his Huffington Post article "10 Hindu Environmental Teachings," writes that:
"Moral behavior creates good Karma, and our behavior toward the environment has karmic consequences. Because we have free choice, even though we may have harmed the environment in the past, we can choose to protect the environment in the future, replacing environmentally destructive karmic patterns with good ones."

Seeing God in all life gives rise to the foundational ethic of Hindu thought: the virtue of ahimsa—nonviolence in thought, word, and deed, and not harming the presence of God in all life. Ahimsa means that we protect and never violate the inherent integrity of being that exists in everything.

The Five Elements

In Hindu cosmology and in the Hindu conception of ecology, five great elements are central: space, air, fire, water, and earth. All of these elements are interdependent, yet each has its own characteristics. The elements of our ecology are considered inherently sacred in many religious and spiritual traditions.

Reverence for the Cow

The cow is symbolic of the Earth itself: she is a great nourisher, considered generosity incarnate. She is a sacred symbol of dignity, strength, endurance, maternity, and selfless service. The cow's life-giving gifts, especially milk and ghee, are essential in Hindu worship and culture.

The bull provides labor where mechanized agriculture is not the norm: fields are plowed and grains and vegetables are grown by traditional organic methods.

Veneration of the cow instills the virtues of gentleness, receptivity, and connectedness with nature. Protection of the cow is important both ethically and practically, giving rise to the practice of vegetarianism.

Actions

- Find Hindu statements, texts, and other resources about ecology at the Forum on Religion and Ecology
- Learn more in the article "Hinduism and Ecology: Its Relevance and Importance"

Catholicism

> *"God's original creation is good. And God saw everything that God had made, and, behold, it was very good."*
>
> *— Genesis 1:31*

Catholicism is a branch of Christianity that embraces the belief that God is the Holy Trinity who created everything in existence including Earth and all of its inhabitants.

It is our duty as God's people to respect and care for God's magnificent creation. We must protect the natural world for ourselves, our families and the larger global community. By making environmentally conscious choices, we will be in greater harmony with God. The Earth is an irreplaceable gift from God.

There are three key teachings in Catholicism related to the environment.

Responsible Stewardship of the Earth

We have the potential to destroy the Earth or protect it. Caring for animals, plants, and ecosystems is a moral obligation. Responsibly managing Earth's resources will help preserve the vibrant world we live in. Being an environmental steward involves taking action to lessen our negative impact upon the Earth. It includes making choices to live sustainably such as conserving energy by turning off electronic devices that are not currently in use, conserving water, recycling, and changing our food practices.

One example of Catholicism in environmental action is Genesis Farm in New Jersey. It was founded in 1980 by Dominican Sisters, who teach environmental education and sustainable living programs with a spiritual and holistic focus.

> *"We human beings are not only the beneficiaries but also the stewards of other creatures. Thanks to our bodies, God has joined us so closely to the world around us that we can feel the desertification of the soil almost as a physical ailment, and the extinction of a species as a painful disfigurement."*
>
> *—Apostolic Exhortation (The Joy of the Gospel)*
>
> *Evangelii Gaudium of The Holy Father Francis, released on November 26, 2013*
>
> *[Excerpted from Pope Francis's first document outlining his vision for the Catholic Church]*

Helping the Poor

Helping the poor is an important moral principle in Catholicism. We have an obligation to reduce the suffering of all people. This includes ensuring that people have access to clean air, water, food, and shelter.

Climate change often harms the lives of individuals in poverty the most. The Catholic Church calls upon people to take actions to help the poor by reducing our carbon footprint, using fewer resources, and other actions. This will ensure that all people can have access to resources that meet their basic needs.

Actions

- The United States Conference of Catholic Bishops provides more in-depth information on Catholic teachings on social justice and the environment
- Find more Catholic statements related to the environment at Catholic Climate Covenant

Solidarity and the Common Good

Solidarity enables us to work together to solve our ecological crisis. We have the power to be agents of positive change. We have a responsibility to protect the Earth because we are all dependent upon it for survival.

How we choose to live our lives on a daily basis will help determine the vitality of our planet and all of its creatures. Catholic environmental advocacy groups such as the Franciscan Action Network spread the message of social justice through community organizing and activism.

> *"Solidarity … is not a feeling of vague compassion or shallow distress at the misfortunes of so many people, both near and far. On the contrary, it is a firm and persevering determination to commit oneself to the common good; that is to say, to the good of all and each individual, because we are all really responsible for all …"*
>
> *—On Social Concern, #38*
>
> *[Excerpted from Pope John Paul II's document released in December 30, 1987 titled Sollicitudo Rei Socialis (On the Social Teaching of the Church)]*

Christianity

We are Earth creatures, made from the dust of creation, given breath by a gracious God. Christianity shares this understanding with Judaism, its parent religion. Indeed, many of Christianity's understandings of the Earth/human relationship are rooted in the Hebrew Bible. That the Galilean prophet, Jesus, became the primary symbol of Christianity—the Word Made Flesh—demonstrates an earthly reality grounded in Christian self-understanding.

Both branches of western Christianity, Roman Catholicism and Protestantism, share core beliefs about the Earth/human relationship.

Creation as Gift

All of Creation—and thus Earth—is a gift of God. Earth is good in and of itself. Yet Earth is also good because it provides for human flourishing. Our human flourishing arises from the gifts of Earth in many ways: we depend upon the Earth for sustenance and joy, for nourishment and beauty.

Revelation

Christians believe that a Holy Book reveals God. Yet Christians also believe that God is revealed through the Book of Nature, that the presence, purpose, and promises of God may just as easily be read in the splendor of Creation. The intelligence that brought Earth into being is engagingly apparent in the Book of Nature.

The Divine Spark

All creation bears the divine spark. Godself is thus present within each aspect of Earth: rock and river, microscopic particles, humans and their creaturely cousins. This is a radically sacramental concept, and while it is historically more prevalent in Roman Catholicism, its presence in Protestantism has also been quietly persistent. Because the divine spark resonates through all reality, Christians believe that to love God is to love Earth; to love Earth is to love God.

For Christians, the relationship between Earth and humanity is necessarily mutual. Humans spring from and are dependent upon Earth. Yet humans also have an impact on the Earth—for good or ill. To seek the healing of a wounded world is perhaps Christianity's greatest challenge.

Actions

- Find Christian statements from various denominations and other resources related to the environment at the Forum on Religion and Ecology

Judaism

Central to our relationship with the world is the knowledge that God created the universe. This leads to a God-centered and not a man-centered approach to our environment. Having reverence and respect for God's creation leads us to principles of preservation and compassion in our relationship to the Earth and its creatures. Our belief that the world God created is harmonious and beneficial for all means that we strive to maintain that harmony in all we do.

Here are five teachings of Judaism that speak to our relationship with the Earth.

Stewardship

Humans take a special place in the world, having both divine and animal aspects. God gave us the earth to till and tend, but he also made us mortal and gave us the same diet as the animals. Thus, though we have dominion over the earth, it is only through God's grace. We must act as stewards, not as lords, and do everything in accordance with God's word.

Sabbath

Jews observe the Sabbath every week, ceasing work and devoting themselves to rest and prayer. The earth must also experience a Sabbath, according to the Torah. Every seventh year, Jews are commanded to let their fields lie fallow. Similarly, Jews are commanded not to harvest everything, but to leave some portion of their crops for the poor and the unfortunate to eat. In this way, we may take advantage of the bounty of the earth without being selfish.

Waste

> *"When in your war against a city you have to besiege it a long time in order to capture it, you must not destroy its trees, wielding the ax against them. You may eat of them, but you must not cut them down. Are trees of the field human to withdraw before you into the besieged city? Only trees that you know do not yield food may be destroyed; you may cut them down for constructing siege works against the city that is waging war on you, until it has been reduced."*
>
> *– Deuteronomy, 20:19-20*

From this passage comes the commandment against waste, called bal tashchit. It speaks to the Jewish reverence for all of God's creations. As such, needlessly destroying any of God's creations is forbidden.

Preservation of Human Life

Pikuach nefesh is the law commanding us to protect human lives at any cost. In contemporary Jewish thought, pikuach nefesh is considered to be related to the precautionary principle, which states that in the absence of proof that a new technology is harmful, it should be assumed that it is harmful and should be avoided. In order to preserve human life, we must use caution and look to the effects of our current lifestyle on the lives of those who will come after us.

Actions

- Explore the resources from the Coalition on the Environment and Jewish Life related to modern environmental issues

Preservation of Species

Several passages in the Torah prohibit the unnecessary killing of non-human creatures. For instance: "If along the road, you chance upon a bird's nest, in any tree or on the ground, with fledglings or eggs and the mother sitting over the fledglings or on the eggs, do not take the mother with her young" (Deuteronomy 22:6-7). Rabbinic tradition has taken this passage to indicate that Scripture does not permit people to destroy a species. This comes from a deep reverence for life and all of God's creations.

Islam

> *But to God belongs all things in the heavens and on the earth; And He it is who encompasseth all things.*
>
> *— Qur'an, 4:126*

Islam, along with Christianity and Judaism, is one of the three Abrahamic religions, which all put forth that humans must live in symbiosis with the Earth. Two important concepts in Islam are tawhid—unity—and khalifah—trusteeship. Unity speaks to living in harmony with Allah and all of his creation. Trusteeship indicates that God gave humans the sacred duty of serving as guardians of the Earth. There are many other Islamic beliefs that call believers to practice ethical stewardship, conservation, and sustainability.

Nature as a Sign

God, nature, and humanity are not distinct concepts, but rather are inextricably bound together. Nature follows immutable, God-given laws, called amwimir, which may be decoded using human intellect. Nature itself has transcendental significance as an emblem. It, along with the Qur'an, is the means by which God communicates with humanity, and therefore nature holds the same metaphysical significance as the Qur'an. Therefore, the cosmos deserves the utmost respect, and any destruction or injury of the natural environment is prohibited.

Trusteeship

God gave all in heaven and earth to human beings. However, this power also carries with it a moral burden. As part of their origin, humans accepted a trust, called amana.

> *"We did indeed offer the trust to the heavens and the earth and the mountains—but they refused to carry it, being afraid of it. But the human being carried it: Ho! Mankind is unfair to itself and foolish."*
>
> *—Qur'an, 33:72*

Humans' stewardship of the earth is therefore not because of an inherent superiority, but because we alone are responsible for our actions. As part of this trust, we are commanded to maintain the natural balance of the cosmos.

Conservation

The Prophet is reported to have said, "When doomsday comes, and someone has a palm shoot in his hand, he should plant it." This indicates that nature is good in and of itself, and should be protected regardless of any benefit to humans. The basis for the mandate for conservation lies in two doctrines of hima and haram.

Hima, as defined in the Islamic law called Sharia, are "inviolate zones" set aside for conservation. Once an area is declared hima, animals cannot graze there and trees cannot be cut down. Haram is an inviolate zone specifically for the benefit of a community. Mosques and temples are often haram, as are sites associated with water distribution, such as wells, springs, or rivers in otherwise barren lands.

Actions

- Read more about these concepts in the article "Islam and Ecology: Toward Retrieval and Reconstruction"
- Find a longer statement on Islam and ecology at the Interfaith Center for Sustainable Development

Environmental Justice

People who have excess water and withhold it from others are among those from whom God will withhold his grace on Judgment Day. This, along with a series of laws about the equal distribution of water among a community for agricultural purposes, indicates the Islamic commitment to environmental justice. Nature's bounty ought to be available for everyone in equal proportion and ought to be cared for so that all may benefit.

Sustainability

The "Book of Agriculture" from Islam's prophetic tradition speaks with moral force about sustainable agricultural practices. Even in Paradise, it is said that humans will practice agriculture, and we must use sustainable practices because Paradise will last forever.

Animal Rights

Animals are considered equal to humans. They have their own communities and individual personalities, and as such ought to be treated with respect. Though the killing of animals for food is permissible, there are a series of laws that govern the process to limit pain and cruelty.

Humanism

Humanism is a worldview that encourages compassion and ethical action while staying rooted in human reason, without belief in the supernatural or otherworldly. Some Humanists refer to Humanism as a religion because it fulfills many of the important functions of a religion: it provides rituals and ceremonies, a historical context for a system of thought, and a community of like-minded people.

Other Humanists prefer not to call it a religion, as Humanism has often stood in contrast to religious traditions. However, all Humanists believe that we ought to live our lives fully, meaningfully, and compassionately, and that humans alone have the responsibility to make our world a good place to live for all.

The Natural World

We know that humanity is an integral part of nature, formed by the same natural process that formed the rest of the world around us. The best way for us to gain knowledge of this world is through observation, experimentation, and rational inquiry. Whether through science, the arts, or reasoned thought, we rely on human intelligence to understand the world and face the unknown future. Science tells us that we are now facing a global climate crisis, and it is our responsibility to respond to this challenge. We must rely on human ingenuity to face the challenges of the future.

Ethics

Human needs and well-being drive our ethics. Our values come from experience and reach to all aspects of the human experience and the global ecosystem. Each person has dignity and worth, and respecting each person as well as humanity as a whole is what guides our choices. We advocate for the protection of our environment and our climate in the name of a deep and broad understanding of human needs.

Fulfillment

Humanists seek fulfillment in the pursuit of humane ideals. Human life itself is a source of awe and reverence. We lead lives of profound purpose as we work for a more just and peaceful world and see human relationships as integral to leading a good life. We work to help all of humankind move beyond mere survival and allow everyone to live a life free of poverty with minimal suffering. Striving to protect our environment for future generations is one of the many causes that can provide meaning and direction in our lives.

Responsibility

Ultimately, Humanism is a human-centered worldview. As we face the challenges of climate change and pollution, we rely only on humanity itself to find solutions. And yet Humanism also believes in the power of humanity to progress toward our ideals and improve upon ourselves. It is with the firm and informed belief in human capabilities and the human spirit that we approach the world and the future.

Actions

- Interested in Humanism? Find a chapter of the American Humanist Association near you

Conclusion

We are elders. The Earth has sustained us throughout our lives, providing nourishment, support, and joy. Now we are called to use our wisdom, passion, and authority to support the Earth in turn and preserve it for the generations to come. There is much that cannot be undone; many of the consequences of climate change are already with us. But we have the power to take action individually and to gather our families and communities for collective action toward a better future.

Every day we are given opportunities to make changes for the better. We can change our relationship to consumption—of food, water, and energy—and our daily routines to reflect a commitment to environmentalism. We can provide an example for our friends and families of a sustainable household and help facilitate access for others to make similar changes. We can support the development of healthy, environmentally sustainable ways of living by recognizing the interconnectedness of our local communities and our responsibilities to each other. We can advocate with systems of power that may be less accessible to younger people and lift up other voices that need to be heard in the political arena.

As Gray-Greens, we believe that we have a powerful voice. We believe that the environment provides meaning to all our lives and needs to be protected, both for the benefit of our fellow humans and for the flora and fauna with which we share this planet. We will step into our role as the stewards the Earth needs to remain a beautiful home for life, in all its forms, for millennia to come. Now is the time to act.