

GREEN
EARTH
2013



A Natural Balance

TREES PROVIDE MANY BENEFITS TO PEOPLE, THE PLANET

The natural world relies heavily on homeostasis — maintaining balance — to stay healthy.

Trees are an integral part of that balance. They remove from the air and soil the carbon dioxide that's produced by animals breathing, by decomposition of dead plants and animals and by microbial activity.

Carbon dioxide is a waste product for us but necessary to trees and other plants for photosynthesis. A by-product of photosynthesis is oxygen which animals, including humans, need to breathe.

Trees provide shade, protection for animals in their ecosystem, and they slow or stop erosion. They also play a part in filtering pollutants from water through their roots.

EVERYTHING IN BALANCE

When humans get too efficient at cutting down trees, we throw off the balance of nature entirely. The natural course is that trees propagate and trees die, so a balance is kept. When humans chop down trees a few at a time, as the pioneers did when clearing land for a small homestead, it's natural, like bears do to reach fruit or beavers do to eat and build dams.

Human use of enormous, ruthlessly efficient machines of destruction is not natural, though. Nature is left without a way to restore the balance on its own. If we tear down large sections of forest, we must also plant new ones to make up for the lost trees.

EMOTIONAL BENEFITS

Not only do trees directly keep the environment healthy, but they also influence human mood and emotion and contribute to the understanding of the interconnectedness of life.

Something in the human psyche appreciates this. We bring the outdoors into our homes and workplaces, and we vacation in natural settings

to relax and “get back to nature.”

Flowers, plants and trees have such an overtly beneficial effect on human mood and productivity that scientists have studied to find out the hows and whys.

A very interesting chain reaction is taking place. Trees may well be opportunistic altruists.

Trees, flowering ones specifically, improve human mood and health. People surrounded by nature become more attuned to their altruistic impulses as they recognize how we and nature depend on each other.

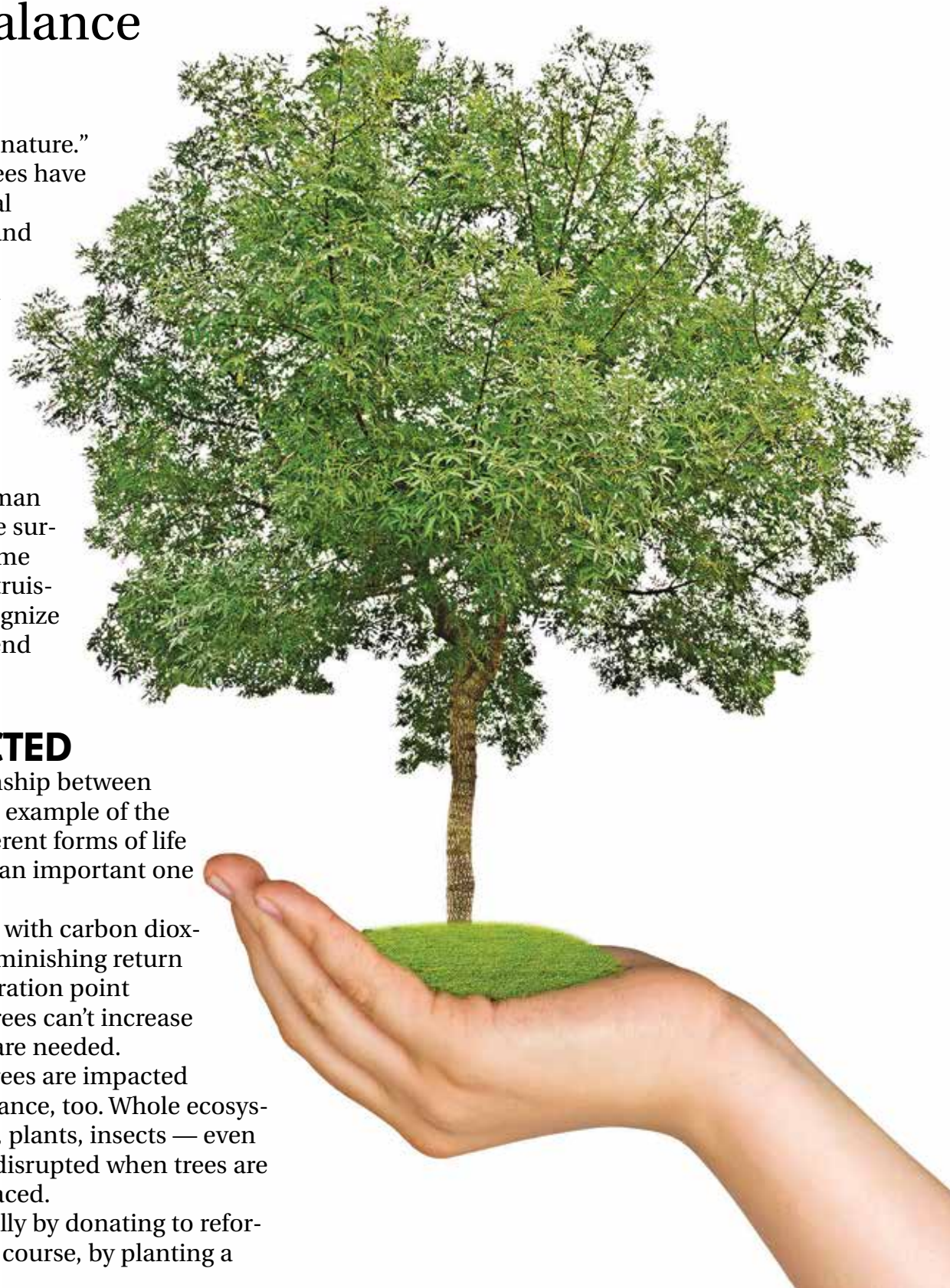
ALL CONNECTED

The symbiotic relationship between trees and humans is one example of the interdependence of different forms of life on planet Earth, and it's an important one to remember.

Overloading the Earth with carbon dioxide reaches a point of diminishing return in plants. There is a saturation point beyond which existing trees can't increase their use, so more trees are needed.

Animals that rely on trees are impacted when we destroy the balance, too. Whole ecosystems of mammals, birds, plants, insects — even down to bacteria — are disrupted when trees are removed and never replaced.

We can help individually by donating to reforestation projects and, of course, by planting a few trees.



Environmental Vegetarianism?

SOME PEOPLE HELP THE PLANET BY TURNING TO VEGGIES

Environmental vegetarianism is the practice of vegan or vegetarian eating based on the environmental impact of animal products.

A vegan is someone who does not eat any animal product. This means a diet free from honey, dairy, eggs, beef, poultry and fish.

There are different kinds of vegetarians. Ovo-vegetarians do eat eggs as well as vegetables; lacto-vegetarians eat dairy and vegetables; and ovo-lacto vegetarians eat both. There is also semi vegetarianism, where the vegetarian also eats fish.

And if the rationale for the diet is based on a desire to help the planet,

all of these eating plans can be considered environmental vegetarianism.

AIR POLLUTION

Believe it or not, livestock are responsible for more greenhouse gas emissions than cars, trains, trucks or planes. Cows have a unique digestive system that specializes in breaking down grass. However, the grain that domesticated cows eat produces methane gas. Livestock cattle are con-

tinuously belching and passing the gas into the atmosphere.

Environmental vegetarians see that as a problem. The sheer size of commercial cattle lots contributes to the contamination of the air we all breathe, they say, so they forgo beef, substituting gas-free vegetables instead.

WATER

A large portion of freshwater con-

sumption in the United States goes to agriculture. Livestock only drink about 1.3 percent of that water, but the amount of water used to raise animal feed is significantly higher.

A Cornell University study in the 1990s suggested that growing enough grain to create one pound of beef requires 12,000 gallons of water, a number the beef industry disputes. Still, researches say, it takes far more water to raise meat than it does to raise vegetables alone.

It's another reason people turn to vegetarianism to help the planet.

LAND AND FEED

Grass-fed livestock use fewer resources than grain-fed livestock. If the grain that animals consume was exported out of the U.S. instead, it would bring in an estimated \$80 billion per year, proving an economic incentive to go vegetarian.

And on top of all this, environmental vegetarians say there are obvious health benefits as well.

According to the American Heart Association, vegetable based diets are better for you than meat-based diets. The organization cites studies that show vegetarians have lower risks for obesity, heart disease, high blood pressure and some types of cancer.

It's just more reasons for people to help the planet — and themselves — by changing their dietary habits.



Conserve Water Wisely

Residents in many Western states in America are accustomed to conserving water in their daily use, but all states have a part to play in ensuring that sufficient water resources are available in the future.

Conserving water can both save money and improve the environment by reducing pollution and preserving the future water supply.

PLUMBING FIXTURES

A typical household of four uses 260 gallons of water each day. Consumers can easily reduce this amount of water by using water-saving fixtures that are widely available at home improvement and hardware stores.

Faucet aerators are a very inexpensive way to reduce water use in your home. These devices break up the water flow into tiny droplets that trap air to clean as effectively as strong water flow faucets.

Install a low-flush toilet when remodeling to help use less water. These toilets use half as much water as traditional toilets. Also install low-flow showerheads which can reduce water use up to 6.4 percent per person in your household.

RAINWATER COLLECTION

Rainwater collection is an ancient method of utilizing rainfall for a later time. Collection tanks include in-the-ground cisterns, plastic rain barrels and aboveground, ferro-cement collection tanks.

Collection systems can vary in size, depending on the amount of rainfall and the type of usage. Some collection systems use the water for the home, as well as for lawn irrigation, gardening livestock and other purposes.

XERISCAPING

Xeriscaping is a method of landscaping residential and commercial properties with native plants that require little additional water than what normally falls.

These plants also require less maintenance than plants brought into the areas for landscaping purposes. Native plants have adapted to the specific area in which you live. They can often withstand droughts, floods, heavy snowfalls and other weather conditions that are common in your area.

To find plants that are native to your area, consult your local agricultural college or horticultural society.

BEHAVIORS

Successful conservation also includes changing your behavior to use less water in your daily activities. These behavioral changes are simple but effective ways to reduce the amount of water you use in your household.

These actions include turning off the water while you brush your teeth, not running the dishwasher until it is full, changing the water level in your clothes washer to fit the load and limiting your lawn watering to early mornings and late in the evenings to reduce evaporation.



Why Does Biodiversity Matter?

The United Nations' Convention on Biological Diversity recently published its third Global Diversity Outlook report, which makes for very disturbing reading.

It reported that almost all global targets for reducing the loss of biodiversity had not been met and added that “we continue to lose biodiversity at a rate never before seen in history. Extinction rates may be up to 1,000 times higher than the historical background rate.”

Put simply, this suggests that activities such as deforestation, fishing and farming are either wiping out species directly — such as over-fishing of tuna and cod — or destroying their habitats to the point where they can no longer support viable numbers of some species.

The destruction of Indonesia's rainforests, for example, has led to the near extinction of its orangutan population.

As the report suggests, there has always been a “background rate” of species extinction, which may be due to any number of natural causes, but the rapid rate at which they are now disappearing can only be attributed to human activity and should be a real cause for concern.

Apart from the obvious need to maintain this diversity because so many of our own needs directly depend on it for food, medicines and other needs, there is still a great deal we don't understand about how the interactions between these species and their environment

contributes to maintaining an environment which will continue to support human life on this planet.

We know that we need bees and other insects to pollinate many of our food crops, but we don't fully understand what effect the loss of other plant

and animal species might be on those species that we do need.

All ecosystems depend on a complex web of diversity, and the extinction of any of the species within this web can lead to the collapse of the whole ecosystem, which could spell disaster for us in

the long run.

In addition, the active ingredients of many of our modern medicines are made from plant extracts, and it is likely that we have already lost undiscovered species which may have proved valuable to us in this respect.



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Do the Write Thing

HAVE AN OPINION ABOUT THE ENVIRONMENT? WRITE YOUR LEGISLATORS

The average citizen has the power to make a positive change for the environment. While it's important to start with your own personal life, it can be even more powerful when you convince other people to join you.

You can do this by telling elected officials your opinions about how the quality of the environment affects your life. You can also encourage leaders to introduce legislation that will protect your environment and wildlife.

Legislators want to hear about what is important to the people they represent. If enough people contact them about an issue, the elected official will consider it an important matter that deserves their attention.

When you advocate an issue, it means you are supporting the issue and are willing to discuss and argue your point to persuade others. As an unofficial lobbyist, you make direct appeals to the legislators and try to

sway legislation by affecting the public's opinion.

As a private citizen, you can write and phone your elected officials with your opinions. You can also participate in postcard campaigns to get attention on an issue.

Legislators understand that if one person is concerned enough about an issue to either write or phone then there must be others who feel the same way.

GET THE FACTS

You do not have to be an expert to have a valid opinion. You do have to know your issue.

Know what action you want to see.

You may want the person to be informed about the issue, to create or strengthen laws, to form an opinion or to give a reply or acknowledgment.

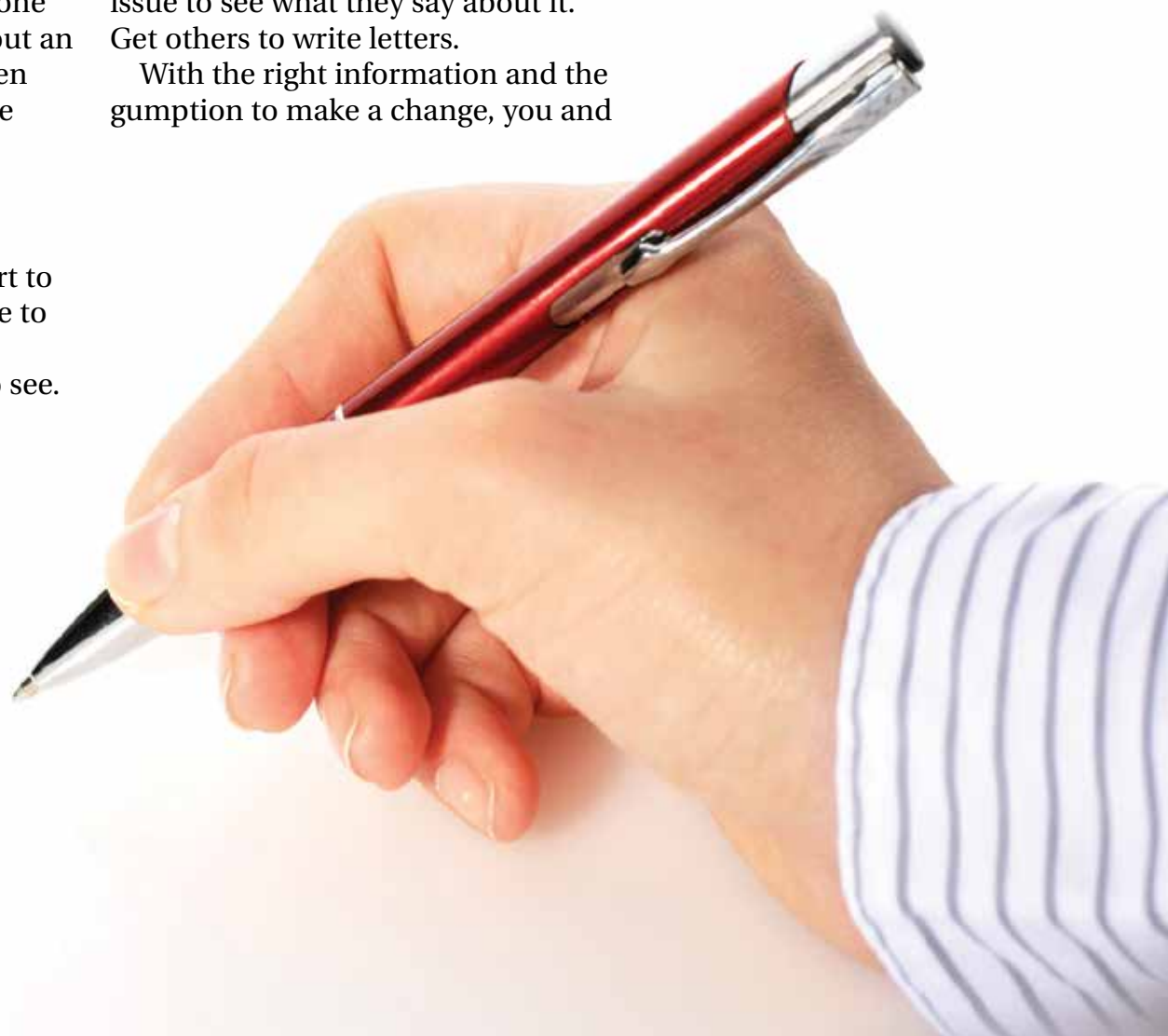
Anticipate what your opposition will say and have ready answers for them. Talk to other people about the issue to see what they say about it. Get others to write letters.

With the right information and the gumption to make a change, you and

all your next door neighbors together can make a difference to the wildlife in your neighborhood and region. Your opinions are important. It is possible to make a better tomorrow by taking the first steps today.

TIPS FOR WRITING A PERSUASIVE LETTER

- Identify yourself and your place of residence.
- Remain positive and offer specific or broad solutions.
- Try to keep it simple and just one page.
- Mention any groups you are involved with on the issue. If it is just you, that is fine.
 - Personal stationary is good and handwritten letters are OK if they are legible.
 - If you are mentioning a bill, identify the bill by name and number.
 - Ask for their opinion on the issue.
 - Include any relevant newspaper clippings.



(Almost) New Electric Cars

ELECTRIC CONVERSIONS GIVE NEW LIFE TO OLD VEHICLES

If you are still clinging to your ancient VW Beetle or an old Isuzu pickup truck, you might hold on for a bit longer, at least if you are interested in converting it to an all-electric vehicle.

Ecogeek reports that a 1972 Beetle recently got a new life as an all-electric vehicle, thanks to the University of British Columbia Electric Car Club.

Ricky Gu, the builder, and a friend then tested the electric Beetle on a 4,039-mile trek across Canada, using only \$65 worth of electricity to complete the journey.

The Beetle was equipped with “lithium-ion phosphate batteries for power storage and also has regenerative braking capability,” ecogeek writer Phillip Proefrock reported. At 31 miles an hour, the car had a range of 341 miles; at 62 miles per hour, the range was reduced to 186 miles. The batteries can be recharged in roughly four hours.

In an interview with CBS News, Gu provided a few more details. According to Gu, recharging was not a problem. He used the “existing electric infrastructure across the entire Trans-Canada Highway,” mostly RV parks and campgrounds.

TAX CREDITS AND OTHER PERKS

If you are interested in converting a vehicle to all-electric, check out the United States Department of Energy’s rebate program for conversion kits. Up to \$4,000 is available through the American Recovery and Reinvestment Act of 2009.

That \$4,000 tax-credit roughly equals the total cost of having some-



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Some people are using their smarts and conversion kits to turn old cars into electric-powered vehicles.

one convert your old car to an all-electric, according to Roger Nethercot of Wichita, Kan. Nethercot started with a 1986 Isuzu truck and transformed it to an all-electric vehicle. He hopes to provide the conversion service to others, he told reporter

Jennifer Bocchieri of kake.com news.

For those with the time and mechanical abilities, a conversion kit is available for around \$200, not including the batteries.

Federal tax rebates are not the only incentives that make the conversion

attractive. Other perks include tax incentives from state and local governments, lower registration costs and access to the coveted HOV lanes.

In some places reserved parking and free public charging are added incentives.

How Much Can the Earth Carry?

OUR PLANET HAS A LIMITED CAPACITY, BUT IT'S DIFFICULT TO CALCULATE

Every day about 340,500 babies come into the world. At the same time, approximately 150,000 people leave the world. That's a little over two births to each death.

And, because the world population is already around 6 billion people, the question of whether or not the earth has the resources to sustain human life has become a question in many researchers' minds.

The number of human lives the earth's environment can support, without harm to either the people or the environment, is known as its carrying capacity.

WHAT IS IT?

The best way to begin to understand carrying capacity is to think of humans and their food supply.

Each person needs a certain amount of food to survive. If you increase the number of humans, you must increase the food supply. If you decrease the amount of food, it follows that you will lose a number of humans to starvation, a heart-wrenching but realistic possibility.

Sounds simple, right? But, it is much more complex than that.

CHANGES

Humans are the only animals on the planet with the ability to alter their impact on



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the Earth. People can increase their food supply through modern farming techniques or they can scale back their consumption.

At the same time, people have the capacity to increase damaging environmental factors, such as putting more carbon emissions into the atmosphere or pollutants in the water. Yet humans are also uniquely capable of creating

new technologies to prevent these damages.

FOOTPRINT

One way to compare human demand with the earth's carrying capacity is by using the "ecological footprint" equation. Ecological footprint accounting is a comparison of the Earth's biocapacity (the rate of regenera-

tion) with human demand, in the same year.

One study concluded that in 1999 the human demand exceeded the Earth's biocapacity by over 20 percent.

Scientists involved with the National Academy of Sciences agree this "overshoot" can be maintained for awhile. Humans can meet the added demands by liquidating their reserves,

reducing carbon emissions and creating new technologies.

The one question they can't answer, as the population of the planet rises and scientists discover more ways to prolong life, is, "How long does the earth have the capacity to carry us?"

It's a question that will become increasingly important to future generations.