

15 LIFE ON LAND



SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, HALT AND REVERSE LAND DEGRADATION AND HALT BIODIVERSITY LOSS

Healthy ecosystems are essential for supporting a wide array of species. Humans are not removed from this cycle, as we rely on our environment to keep us healthy, fed and supported in our daily lives. Without sustainable development, protecting the diversity of life on our planet and keeping ourselves warm and fed can seem like an impossible task. Protecting our lands means protecting the soil and species that live there. This is particularly important for industries located near natural ecosystems such as mining and agriculture. The right balance between our needs and the needs of our planet is essential to preserving life on land.

TARGETS

- Protect and conserve ecosystems (such as deserts and rainforests) by respecting international agreements and halting biodiversity loss.
- Reduce deforestation, plant more trees to increase reforestation and sustainably manage forests for the future.
- Protect and prevent the extinction of endangered species by controlling hunting and trafficking protected flora and fauna.
- Involve Indigenous communities in the conservation of our ecosystems.

“One individual cannot possibly make a difference, alone. It is individual efforts, collectively, that makes a noticeable difference—all the difference in the world!”

Dr. Jane Goodall
British primatologist and
UN Messenger of Peace



LEARNING OBJECTIVES

- 1** Learners will understand basic ecological systems and biodiversity, with reference to local and global ecosystems.
- 2** Learners will understand the threats posed to biodiversity, such as habitat loss, deforestation, overexploitation and invasive species.
- 3** Learners will understand the importance of stopping destructive environmental practices that cause biodiversity loss.
- 4** Learners will be able to connect with local groups and advocate for a life in harmony with nature.

CURRICULUM CONNECTIONS

Media

What important perspectives are needed for a story on environmental issues?

Environment

How is humanity a part of our natural environment and apart from it?

Poverty, wealth and Power

How does deforestation, and other forms of environmental degradation, relate to poverty?

Indigenous Peoples

How have Indigenous communities advocated for environmental protection?

Oppression and genocide

How does war impact environmental conservation?

Health and biotechnology

How does environmental degradation impact our health?

Gender politics

How is soil degradation a gendered issue?

Social justice and human rights

How do minorities and vulnerable populations experience environmental degradation and/or resource extraction uniquely?

Peace and conflict

How can we develop a program for peace that includes environmental protection?



THE BIG QUESTIONS

1 Where did it begin?

- When we talk about **biodiversity**, we are discussing the variety of life in the world in general, as well as a particular habitat or ecosystem. When ecosystems are healthy and supportive, they are considered rich in biodiversity. Tropical forests and marine coastal zones are particularly rich in biodiversity. We need ecosystems to support the well-being of the environment and humanity, therefore biodiversity is essential in helping keep systems balanced. For example, the Catskill watershed near New York City contains a number of diverse species of plants that help provide drinking water for the city. If the biodiversity of this area is impacted, it could harm this supportive ecosystem environment and reduce its ability to provide clean water.
- Damage to biodiversity is sadly on the rise. According to the UN, between 1990 and 2015, forest coverage has diminished from 31.6 per cent to 30.6 per cent of the world's total land mass.¹ This loss was mainly caused by **deforestation** for agricultural and infrastructural development. Biodiversity is affected by increases to human consumption, populations and resource extraction.
- Indirect drivers have direct impacts on biodiversity through over-exploitation, habitat change, pollution, **invasive species** and **climate change**. New species introduced to an ecosystem can be a threat and competition for resources to indigenous species that may not adapt as well to change, such as Japanese knotweed or the cane toad in Australia.
- To ensure global biodiversity for the future, protected areas have been established and identified as key biodiversity areas. In 2014, 15.2 per cent of the world's terrestrial and freshwater environments were covered by protected areas.² Protecting our ecosystems is slowly gaining more momentum, with the percentage of key terrestrial areas covered by protected areas increasing from 16.5 per cent in 2000 to 19.3 per cent in 2016.³
- We need biodiversity and the systems it supports (such as disease resistance and water purification for humans) to change the course of climate change and natural disasters. Strong biodiverse systems help limit the negative impacts of climate change by strengthening the health of the ecosystem and its ability to adapt to change.



2 Why does this issue matter?

- **We need to reduce deforestation and desertification**

Combating **environmental degradation** and threats to biodiversity is integral to ensuring agriculture is able to positively impact valuable ecosystems for future generations. Currently, 2.6 billion people depend on agriculture as their livelihood, however over half of the land used is moderately to severely affected by **soil degradation**.⁴ When the soil becomes unable to support growth, it becomes desert, a process called **desertification**. In order to reverse desertification, we need to mitigate drought and stop overuse, poor crop rotation and climate change to see the return of the green.

- **We need to increase biodiversity and end threats to endangered species**

Biodiversity is mutually beneficial for us and for our planet. All organisms need food to eat, shelter to protect them and resistance to damaging forces like climate change, disease and habitat changes. Humans in particular need biodiversity to sustain resources we use for health, food and infrastructure development. While we are expanding protected areas, the risk of **extinction** is still threat for many vulnerable species due to ongoing human activity and expansion. Of the 8,300 animal breeds known, 8 per cent are extinct and 22 per cent are at risk of extinction.⁵

- **We need to improve conservation efforts**

Environmental conservation is the practice of protecting an ecosystem on individual or governmental levels. Conservation can be done through policies, economic incentives, voluntary practices, and public campaigns. Threats to conservation occur when people do not respect policies or conduct illegal activities (such as poaching animals in conservation areas) that put strain on species that are in need of protection. Since 1999, at least 7,000 animal and plant species have been detected in the illegal trade.⁶ Enforcement of protective policies and the **ratification**, or validation and action, of international agreements need to be maintained in order to make a difference.

“ We must protect the forests for our children, grandchildren and children yet to be born. We must protect the forests for those who can't speak for themselves such as the birds, animals, fish and trees. ”

Chief Qwatsinas (Edward Moody)
Nuxalk Nation, British Columbia



3 Who and what are affected?

- **Soil**

Healthy soil supports healthy and sustainable ecosystems for plants, animals, and humans. Sadly, arable land loss from soil deterioration is estimated to be 30 to 35 times the historical rate in recent years.⁷ Soil needs roots to hold it together and help maintain the balance of nutrients.

Deforestation, desertification and floods can impact soil structure, drainage, acidity and nutrients levels that contribute to erosion and degradation. Protecting our biodiversity means supporting our ecosystems from the ground up with sustainable practices.

- **Vulnerable populations**

Almost 75 per cent of the world's poor are affected directly by land degradation.⁸ **Poverty cycles**, uneven **gender** responsibilities and unequal access to resources, **sanitation** and services makes adapting to changes in land quality difficult for vulnerable populations such as women, Indigenous communities, rural communities and the poor. Increases in pollutants, infectious diseases and poor hygiene and nutrition put additional strains on those who are marginalized.

- **Farmers**

As the main industry impacting biodiversity, deforestation and the quality of our soil, agriculture plays an integral role in ensuring our ecosystems are healthy and sustained. **Sustainable agriculture** needs to be accelerated and researched to improve the uptake of renewable practices by farmers.

Farmers play a critical role in meeting this **sustainable development** goal by conserving our ecosystems and ensuring future **food security**. Sharing knowledge, improving access to agricultural tools, protecting harvests and prioritizing research are great ways to improve the resilience and sustainability of farmers impacted by land degradation.

“Education, if it means anything, should not take people away from the land, but instill in them even more respect for it, because educated people are in a position to understand what is being lost. The future of the planet concerns all of us, and all of us should do what we can to protect it. As I told the foresters, and the women, you don't need a diploma to plant a tree.”

Wangari Maathai

Kenyan environmental activist and Nobel Peace Laureate

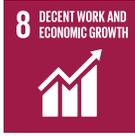


4 What needs to be done?

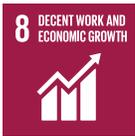
- Improving biodiversity and reversing land degradation requires a **systems approach** to protecting and conserving our ecosystems and species, while allowing agriculture and industry to support drivers of human development.
- Instead of responding to issues on a case-by-case basis, taking an ecosystem approach to resource management and environmental protections considers the interrelationships of ecosystems as a whole into decision making. Working with decision-makers and diverse **stakeholders** like farmers, national parks staff, environmental groups and citizens helps introduce a collaborative approach to conservation.
- International environmental agreements are important to protecting vulnerable ecosystems and species from damaging human impacts at local, national and international levels. Agreements are usually legally binding and have implications if they are not followed. Some of the most well-known agreements include the Kyoto Protocol and the Geneva Protocol.
- **Non-governmental organizations (NGOs)** at local, national and international levels are integral to supporting specific environmental concerns as well as organizing citizen, business and governmental efforts to conserve and protect our environment. Organizations like Greenpeace, World Wildlife Fund, Jane Goodall Institute of Canada and David Suzuki Foundation are integral to raising awareness and holding stakeholders accountable to social, economic, and political commitments to protect and conserve.
- Changes to our own habits and practices are essential for reducing our environmental impact and ensuring a sustainable future for humanity. Taking on a particular initiative to raise awareness, donating funds or making a positive change in your community's relations with the environment are great ways to get involved. Global change starts with you.



CONNECTION TO THE OTHER GOALS



Improving biodiversity, reversing land degradation and implementing sustainable agricultural practices intersect with a number of other goals. By improving food security, reducing inequalities between urban/rural and gender divides, and improving decent work by investing in sustainable agricultural jobs, everyone benefits and Life on Land targets are met.



From medicine to makeup, we depend on our ecosystems for our health, well-being and economic development. Biodiversity and the quality of our ecosystems are powerful indicators letting us know the sustainability, or unsustainability of our impact on the environment.



Reducing deforestation and soil degradation and increasing resilience to natural disasters are all connected with efforts to put an end to human impacts on climate change. Addressing our high emissions and reliance on non-renewable resources will help us maintain an ecologically sound future.



Consequences of inaction

- Lowering the biodiversity of our planet will cost us valuable resources in our economy. For example, insects and other pollen-carriers alone are estimated to be worth US\$200 billion per year to the global food economy. No more bees, no more food or money, honey.
- Three-quarters of the top-ranking prescription drugs contain components that are derived from plant extracts.¹⁰ Decreasing the biodiversity of our ecosystems jeopardizes our own well-being in addition to our planet's.
- Increased natural disasters caused by disrupted ecosystems from human impact and climate change already costs the world more than US\$300 billion per year.¹¹ Failing to curb deforestation and reestablish healthy forest ecosystems will only increase that financial cost for our governments, while putting vulnerable populations under even more strain.

REFLECTION AND ACTION QUESTIONS

- 1 How do you feel about the issue now that you know more about it?
- 2 How might this issue have been prevented? What could have been done differently?
- 3 How has this problem changed over time? Where do you see it going in the future?
- 4 What questions do you still have?

“The environment, after all, is where we all meet, where we all have a mutual interest. It is one thing that all of us share. It is not only a mirror of ourselves, but a focusing lens on what we can become.”

Lady Bird Johnson
Former US First Lady



RESOURCES

How to take action

- **Reduce, reuse, recycle.** Consider a life with less packaging by reusing containers and bringing your own bag. Recycling and reducing our waste will mean less of it ends up in our ecosystems. Sort your recyclables correctly, use reusable food wrap, keep a reusable water bottle handy, don't print if you don't have to, turn off the lights and take shorter showers. These are all small actions that can help make a big difference for our planet.
- **Eat local, organic and fair trade.** When we eat local, we reduce the amount of emissions needed to transport our produce from far away. Organic-, Rainforest Alliance- and Fairtrade-certified products ensure the environment and farmers are getting a fair deal. In particular, they protect local ecosystems from harmful practices, overuse of pesticides and unsustainable sourcing that damages ecosystems near agricultural and recreational land.
- **Go vegetarian.** Beyond ethical and health reasons, increases in meat consumption mean increased demands for agricultural lands that are often reclaimed from natural ecosystems. Find out what produce is grown locally and whether it's organic or less resource intensive. Try going vegetarian or reduce your weekly consumption to ensure we keep our forests sustainably wild and free.
- **Respect our wildlife.** If you're heading out on a holiday, make sure you choose ethical and responsible eco-tourism opportunities. It's important to utilize tour operators that respect ecosystems to ensure our leisure doesn't result in habitat loss or animal harm.
- **Use your voice.** Be a voice for our planet and advocate for your community and government to support well-managed, healthy and protected ecosystems through policy support, awareness and actions. Learn about environmental management in your area and find time to do a clean-up challenge with your school or community organization. Get involved in the preservation of vulnerable or important ecosystems in your community.
- **Plant trees.** Follow the lead of [Trees for Tomorrow](#). With more than six million trees planted by Manitobans, the Manitoba Forestry Association program focuses on revitalizing our province and giving back to our planet. Order trees for schools, communities or your own backyard.
- Check out **Canadian Parks & Wilderness Society (CPAWS)**. Learn more about campaigns within Manitoba to protect ecosystems and biodiversity. See what's happening within the province and choose an issue to work on.
- **Take your students to a provincial park near you.** Explore biodiversity and the local ecosystem. Check out the [Teacher's Corner](#) on the Government of Manitoba's Sustainable Development page for more information. Students can also become Nature Detectives, Junior Naturalists or Park Explorers through [this program](#) with Manitoba Parks.
- **Join [Go Wild Manitoba](#).** Help conserve plant and animal species in Manitoba.
- **Host an event.** Help educate your community on the importance of Goal 15. Run an assembly, a photo gallery showcasing local wildlife or another event and raise awareness for protecting our planet.



Educational resources

- The World's Largest Lesson page for Goal 15 has downloadable comics, posters and lesson plans [here](#). You can also download a lesson for 11-14 year olds about [The Impact of Pollution on our Planet and Lives](#). This lesson highlights the different forms of environmental pollution and explores ways to reduce pollution. [Wild for Life!](#) (ages 8 to 12) is a lesson plan on the topic of endangered species and includes a fun quiz for students to find their kindred species. It also explains how individual choices and actions can contribute to improving the environment.
- The Biodiversity Education and Awareness Network of Canada has a wealth of [resources and lesson plans](#) from the power of plants to the principles of biodiversity.
- The United States Environmental Protection Agency has a number of [lesson plans and resources](#) focusing on air, climate change, ecosystems, energy, health, waster and water.
- Consider these National Geographic Society lessons on deforestation and environmental management for use in your classroom. Explore how deforestation in the Amazon rain forest affects the water cycle, nutrient cycle and plant and animal life using this [activity](#).
- The World Wildlife Fund has a number of [lesson plans, project ideas, and additional resources](#) to help bring environmental conservation to your classroom.
- Check out these 50 [youth-led solutions and ideas](#) for implementing the SDGs, including several solutions and ideas for Goal 15. Some examples include solutions for Brazilian nut farmers sustainably coexisting and preserving the rainforest in Peru, digital land resource management apps used in Ghana, and a program to engage students in sustainability efforts across the UK, run by students, for students.
- Learn more about sand dams and how they work to conserve water during the dry season through this [Mennonite Central Committee video](#).
- Share the BBC Planet Earth video series with your students as you teach about biodiversity. Check out this [lesson plan about biological diversity](#) (Grades 4 to 6) that explores species extinction and the effect on food webs.
- Learn which species and ecosystems are [endangered in Manitoba](#) or more about [biodiversity in the province](#) using information from the government of Manitoba website.



CASE STUDIES

1 World Wildlife Fund (WWF)

Reducing deforestation has a huge impact on improving quality of soil and preventing erosion. Sustainable forest management and reforestation are both necessary and possible through the preservation of forest ecosystems. The [World Wildlife Fund \(WWF\)](#) has worked closely with a number of national governments to establish successful programs to raise awareness about deforestation and how to put an end to it. In 2004, Paraguay implemented a Zero Deforestation Law with the help of the WWF, reducing their deforestation rate by 85 per cent in the following years.¹²

2 African-Eurasian Migratory Waterbird Agreement

Because of how far and wide they travel, migratory birds are particularly vulnerable to habitat loss and threats to biodiversity. For example, land reclamation, changes in agricultural practices, and poaching have resulted in a sharp 80 per cent decline in the breeding population of the Red Knot bird in North America since 2000.¹³ In partnership with the UN Environmental Programme, the [African-Eurasian Migratory Waterbird Agreement](#) was developed as a plan of action to protect these birds and ensure their habits remain intact and their populations stable.

3 Great Green Wall

The [Great Green Wall](#) is an initiative developed and launched by the African Union to stop the impacts of climate change and desertification in the Sahara. Its goal is to reverse land degradation, increase food security and climate change resilience for local communities through reforestation and increased sustainable agriculture in rural communities. The initiative is encouraging awareness and education through **South-South cooperation**, or exchanges of resources, technology, and knowledge, between developing countries.¹⁴

4 Canadian Physicians for Aid and Relief

Canadian Physicians for Aid and Relief has been developing integrated land rehabilitation and support for Tanzania's Rubana River and surrounding wetlands by increasing local awareness of the causes and consequences of environmental degradation. Rural subsistence farmers, half of which are women, formed 33 farmers' field schools. The schools provide training designed to rehabilitate the land and riverbanks. They also introduced conservation agriculture practices so families can increase their crop yields and household incomes.



5 USC Canada

[USC Canada](#) has been working to promote sustainable agricultural practices that improve the food and economic security, agricultural biodiversity, and nutrition of small-scale farmers from 63 communities in the Northern Potosi region of Bolivia. With an emphasis on water harvest structure, seedling production, nutrition and farmers' innovation, this project is empowering rural women, men and youth to improve sustainable livelihoods and environmental resilience.

6 Cuso International

[Cuso International](#) is developing a program called B-ADAPT to reduce the impacts of **overconsumption** in Cameroon's forested regions. Started in 2013, this project will seek to improve agricultural techniques in Cameroon's two Model Forests to preserve the forests while ensuring local economic stability in the face of rapidly changing climate patterns. Yields of the highly nutritious moringa plant will be scaled up and promoted as a viable alternative to illegal logging. Two thousand producers will have increased access to improved production systems.

End notes

¹ <https://sustainabledevelopment.un.org/sdg15>

² <https://sustainabledevelopment.un.org/sdg15>

³ <https://sustainabledevelopment.un.org/sdg15>

⁴ <http://www.un.org/sustainabledevelopment/biodiversity/>

⁵ <http://www.un.org/sustainabledevelopment/biodiversity/>

⁶ <https://sustainabledevelopment.un.org/sdg15>

⁷ <http://www.un.org/sustainabledevelopment/biodiversity/>

⁸ http://www.un.org/sustainabledevelopment/wp-content/uploads/2016/08/15_Why-it-Matters_Goal15_Life-on-Land_3p.pdf

⁹ http://www.un.org/sustainabledevelopment/wp-content/uploads/2016/08/15_Why-it-Matters_Goal15_Life-on-Land_3p.pdf

¹⁰ http://www.un.org/sustainabledevelopment/wp-content/uploads/2016/08/15_Why-it-Matters_Goal15_Life-on-Land_3p.pdf

¹¹ http://www.un.org/sustainabledevelopment/wp-content/uploads/2016/08/15_Why-it-Matters_Goal15_Life-on-Land_3p.pdf

¹² <https://www.worldwildlife.org/threats/soil-erosion-and-degradation>

¹³ <http://www.un.org/sustainabledevelopment/blog/2017/05/on-world-migratory-bird-day-un-spotlights-common-destiny-for-wildlife-and-people/>

¹⁴ <https://www.youtube.com/watch?v=kmgrwW5fQ5E>