

Biodiversity and Forests

Biodiversity refers to the variety of life on Earth – from plants and animals to tiny microorganisms. To date, about 1.5 million species have been identified, but it is estimated that between 6 and 15 million species exist worldwide.¹ Many species are dependent upon forests for their survival.² At the same time, specific combinations of species interact to create and maintain many of the invaluable ecological processes forests provide.³ It is therefore not surprising that a great deal of the global concern with deforestation centres on the alarming loss of biodiversity it creates.⁴ Continue reading to find out why forests are so important to biodiversity and vice versa.

- Forests are home to up to 90% of the world's terrestrial biodiversity.⁵
- Canadian forests are home to about two thirds of Canada's 140,000 species,² including black bears, grizzly bears, caribou and grey wolves, as well as a diversity of flowers, plants and many different tree species, such as fir, birch and oak trees.⁶
- Over 300 forest-associated species in Canada are currently classified as being at risk.⁷ Habitat loss and destruction is the primary threat to these species.⁸
- One of Canada's most well known endangered species is the spirit or Kermode bear. Surviving primarily in British Columbia's Great Bear Rainforest, the spirit bear is a black bear with white fur, caused by the expression of a rare gene.⁹ Undisturbed forests play an important role in their survival, providing vegetation and allowing salmon to flourish in the streams. In return, the spirit bear contributes to the forest by leaving salmon carcasses on the ground, which decompose and nourish the soil.¹⁰
- Another important species listed as "threatened" is the boreal woodland caribou. These animals act as key indicators of forest health, so if caribou are not faring well, neither are Canada's forests.¹¹
- African rainforests are home to the majority of the world's wild chimpanzees.¹² Unfortunately, deforestation has left only a fraction of the chimp habitat that used to exist. The Gishwati forest, for example, used to be one of Rwanda's largest indigenous forests and is now only 1% of its original size, leaving Gishwati chimps near extinction.¹³
- Approximately 80,000 different species of trees exist around the globe. However, 10% of these are threatened with extinction.¹⁴

- Ecosystem diversity (i.e. the variety of plant, animal and micro-organism species in an ecosystem) is critical in maintaining regularly functioning ecological processes. Fluctuations in an ecosystem's biodiversity, for example from deforestation or climate change, can disrupt a variety of vital processes, including pollination and seed dispersal, climate regulation, carbon sequestration [<http://janegoodall.ca/planet-relief/ClimateChangeandForests.html>], pest and disease control and human health regulation.¹⁵
- Changes to an ecosystem can also be caused by invasive species – typically insects, plants or microorganisms introduced outside their natural environment. Invasive species can disturb the ecological balance of an ecosystem, negatively impacting biodiversity and degrading water and habitat. They can also have high economic costs.¹⁶ For example, the mountain pine beetle [http://mpb.cfs.nrcan.gc.ca/biology/index_e.html] is expected to kill 80% of British Columbia's pine trees by 2013 and the federal government has spent hundreds of millions of dollars to counteract the infestation.¹⁷
- An outbreak of tree-eating insects is often viewed as a pest problem because of the economic costs associated with the loss of so many trees. However, the process of native insects eating trees is natural, and helps to decompose injured or sick trees, thus contributing to the regeneration of the forest.¹⁸
- Advances in genetics have allowed scientists to develop different kinds of genetically modified (GM) trees. Some are tolerant to herbicides, some are resistant to insects, and some have better fibre quality. While this could make forestry easier and more profitable, there are many concerns that introducing GM trees into forest ecosystems could disrupt biodiversity, or even lead to the transfer of genes to other organisms.¹⁹
- In addition to its inherent value, biodiversity has many practical uses. Around the world, we rely on over 40,000 species every day for clothing, shelter, nutrition, and medicine.⁴

¹ <http://www.globalcanopy.org/main.php?m=116&sm=136&ssm=133>

² <http://www.globalforestwatch.org/common/canada/report.pdf>

³ <http://www.cbd.int/forest/about.shtml>

⁴ http://www.cifor.cgiar.org/Publications/Corporate/FactSheet/forests_biodiversity.htm

⁵ http://www.countdown2010.net/tmp/Forest_Gap_Analysis_June08.pdf

⁶ http://www.davidsuzuki.org/Forests/Forests_101/boreal.asp

⁷ <http://canadaforests.nrcan.gc.ca/article/speciesatrisk>

⁸ <http://canadaforests.nrcan.gc.ca/indicator/speciesatrisk>

⁹ http://www.corporate.gov.bc.ca/bcspiritbear/more_about_spirit_bear.htm

¹⁰ http://www.spiritbear youth.org/spiritbear.php?page_id=16

¹¹ http://www.davidsuzuki.org/about_us/Dr_David_Suzuki/Article_Archives/weekly04240901.asp and

http://salsa.democracyinaction.org/o/281/t/9735/p/dia/action/public/?action_KEY=1427

¹² <http://www.janegoodall.ca/about-chimp-habitat.php>

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- ¹³ <http://www.sciencedaily.com/releases/2008/03/080318084337.htm>
- ¹⁴ <http://www.globaltrees.org/about.htm>
- ¹⁵ http://www.icsu-lac.org/diversitas/MA_BiodivRegES_Diaz_etal_2005.pdf
- ¹⁶ <http://www.invasivespecies.gc.ca/english/View.asp?x=501>
- ¹⁷ http://www.wd.gc.ca/eng/77_10418.asp and http://mpb.cfs.nrcan.gc.ca/index_e.html
- ¹⁸ <http://ecosys.cfl.scf.nrcan.gc.ca/perturbation-disturbance/insecte-insect-eng.asp>
- ¹⁹ <ftp://ftp.fao.org/docrep/fao/011/i0350e/i0350e02a.pdf>