



General Assembly Second Committee Topic Background Guide  
*Topic 2: Biodiversity and Development*<sup>1</sup>

6 July 2014

Biological diversity (often shortened as “biodiversity”) refers to “the variability among living organisms from all sources including ... terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.”<sup>2</sup>

The 1,360 scientists and other experts involved in the UN-sponsored Millennium Ecosystem Assessment (MA), measure biodiversity at four levels of analysis -- genes, populations, species, and ecosystems.<sup>3</sup> At each level, assessing diversity requires consideration of three factors: variety, quantity and quality, and distribution.

- Variety refers to “the number of different types. For example, this could refer to different species or genes, such as how many bird species live in a particular place or how many varieties of a genetic crop strain are in production.”
- Quantity and quality refers to “how much there is of any one type. Variation on its own will only rarely meet people’s needs. For example, for many provisioning services (food, fresh water, fiber) the quantity or the quality matter more than the presence of a particular genetic variety, species, or ecosystem.”
- Distribution refers to “where that attribute of biodiversity is located. For example, having all the world’s pollinators present but only in a single location will not meet the needs of the plants that depend on them. Many ecosystem services are location-specific. For instance, human and natural communities need to be close to wetlands to benefit from their regulatory roles.”<sup>4</sup>

Biodiversity is important for both instrumental (practical) and normative (values-based) reasons. For example, having a variety of genetic strains of an important food crop such as corn is vital to protecting world food production. Similarly, preserving a variety of plant and animal populations and species has the instrumental value of conserving human food and medical supplies. Finally, preserving a variety of ecosystems makes it more likely that a variety of genes, populations, and species will survive and, as a result, that humans too will survive and prosper. In addition to these instrumental reasons, preserving genetic, population, and species diversity has the normative value of preserving the Earth and enabling humans to enjoy and be inspired by nature.

Today, biodiversity is discussed and assessed at each of these levels. Of them, the most important is the ecosystem level. An ecosystem is “the complex of living organisms, their physical environment, and all their interrelationships in a particular unit of space.” Ecosystems include living organisms (plants, animals and microbes) and the nonliving components of their environment (minerals, climate, soil, water, sunlight), as well as the energy and nutrient cycles that connect them.<sup>5</sup> When ecosystems are healthy, they offer many vital instrumental benefits to

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<sup>1</sup> This background guide was written by Kedra Hildebrand and Karen Ruth Adams, faculty advisor, with contributions from Nicholas Potratz (2014). Copyright 2014 by Kedra Hildebrand and Karen Ruth Adams.

<sup>2</sup> Convention on Biological Diversity (CBD), “Text of the CBD,” 1993, Article 2, <http://www.cbd.int/convention/text/>.

<sup>3</sup> Georgina Mace, *et al.*, “Biodiversity,” in *Ecosystems and Human Well-Being*. (Washington: Island Press, 2005), p. 81, <http://www.maweb.org/documents/document.273.aspx.pdf>. See also Millennium Ecosystem Assessment (MA), “Overview of the Millennium Ecosystem Assessment,” 2005, <http://www.maweb.org/en/About.aspx#1>.

<sup>4</sup> Mace, *et al.*, “Biodiversity,” p. 80.

<sup>5</sup> “Ecosystem.” *Encyclopedia Britannica*, accessed 23 September 2012, <http://www.britannica.com/EBchecked/topic/178597/ecosystem>.

## Montana Model UN High School Conference

humans, including breathable air, potable water, fertile soils, and productive forests and fisheries. According to the World Health Organization, “People depend on biodiversity in their daily lives, in ways that are not always apparent or appreciated. Human health ultimately depends upon ecosystem products and services (such as availability of fresh water, food and fuel sources).”<sup>6</sup>

According to the scientists involved in the Millennium Ecosystem Assessment, the continued health of Earth’s ecosystems depends on the preservation of biodiversity.<sup>7</sup> Yet biodiversity is in decline. How can the General Assembly Second Committee address this problem so ecosystems can continue to provide the means for human prosperity and inspiration, as well as national and international development?

### ***History and Current Events***

Addressing this problem requires an understanding of current and historical levels of biodiversity and biodiversity loss, the causes of biodiversity loss, and possible protective measures.

#### Current Knowledge about Biodiversity and Biodiversity Loss

Most estimates place the total number of species on Earth between 5 and 30 million; of these, just 2 million species (mostly plants and animals used by people in developed countries and temperate ecosystems) have been formally named and described. To develop a better understanding of current biodiversity, scientists must pay more attention to describing and naming plants and animals that are important to people in tropical areas. In addition, it is important to learn more about the diversity and functioning of species not currently used by humans, as well as about the worldwide variety of genes, populations, and ecosystems. Without this knowledge, there will be gaps in protection against biodiversity loss in tropical, marine, freshwater, and subterranean ecosystems, as well as among plants, invertebrates, and micro-organisms.<sup>8</sup>

For decades, scientists have developed this knowledge. As a result, in the world’s tropical rainforests, new species of trees, plants, animals, birds, and insects are “found every year.”<sup>9</sup> According to scientists, “tropical forests such as the Amazon have the greatest concentrations of animal and plant species of any terrestrial ecosystem. Perhaps two-thirds of Earth’s species live only in these forests.”<sup>10</sup> Yet, at current rates of deforestation, few if any tropical forests will remain by the end of the 21<sup>st</sup> century, making it difficult for the genes, populations, and species that live in them to survive.<sup>11</sup> Similar trends are evident in temperate, desert, and other ecosystems.

According to the UN Food and Agricultural Organization, “three-quarters of biodiversity in crops has been lost in the last century... Eighty percent of maize types that existed in the 1930s are gone... In the United States, 94 percent of peas are no longer grown.”<sup>12</sup> Moreover, according to the UN,

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<sup>6</sup> World Health Organization, “Biodiversity,” accessed 14 October 2011, <http://www.who.int/globalchange/ecosystems/biodiversity/en/index.html>.

<sup>7</sup> Mace, *et al.*, “Biodiversity,” p. 80.

<sup>8</sup> Mace, *et al.*, “Biodiversity,” pp. 79-81.

<sup>9</sup> Jeremy M.B. Smith, “Tropical Rainforest,” *Encyclopedia Britannica*, accessed 14 October 2011, <http://www.britannica.com/EBchecked/topic/606576/tropical-rainforest>.

<sup>10</sup> Stuart L. Pimm, “Deforestation,” *Encyclopedia Britannica*, accessed 14 October 2011, <http://www.britannica.com/EBchecked/topic/155854/deforestation>.

<sup>11</sup> Pimm, “Deforestation.” See also Karen Ruth Adams, “Deforestation,” Montana Model UN General Assembly Plenary Background Guide, 14 October 2011, pp. 4-5.

<sup>12</sup> Elisabeth Rosenthal, “Near Arctic, Seed Vault Is a Fort Knox of Food,” *New York Times*, 29 February 2008, <http://www.nytimes.com/2008/02/29/world/europe/29seeds.html>.

## Montana Model UN High School Conference

Species have been disappearing at up to 1000 times the natural rate, and this is predicted to rise dramatically. Based on current trends, an estimated 34,000 plant and 5,200 animal species - including one in eight of the world's bird species - face extinction... About 30% of breeds of the main farm animal species are currently at high risk of extinction... Forests are home to much of the known terrestrial biodiversity, but about 45 per cent of the Earth's original forests are gone, cleared mostly during the past century... Up to 10 per cent of coral reefs - among the richest ecosystems - have been destroyed, and one third of the remainder face collapse over the next 10 to 20 years... Coastal mangroves, a vital nursery habitat for countless species, are also vulnerable, with half already gone.<sup>13</sup>

### Historical Biodiversity Loss

Fossil dating suggests that, over the last 3.5 billion years, the Earth has experienced a series of mass extinctions. With the development of agriculture about 10,000 years ago, extinction rates of genes and species became 15-100 times greater than they were in the previous 100,000 years.<sup>14</sup>

An example of early biodiversity loss occurred between 1,000 and 3,000 years ago in Polynesia, where humans are thought to have caused the extinction of over 2,000 species of birds when they colonized tropical islands and began harvesting birds, removing habitat, and introducing predatory species. More recently, from the 1400s through the 1800s, European colonization had massive impacts on biodiversity loss through the exchange of species, the conversion of habitat, especially through deforestation, and the overall harvesting of species.<sup>15</sup> Trends that started under colonization increased during the industrial revolution from 1750 to 1850. As the push for modernization and development continues in the current era, biodiversity losses have increased.<sup>16</sup>

According to geography professor Jared M. Diamond, the decline of many past civilizations was related in part to ecosystem damage and biodiversity loss through overfishing, over hunting, habitat destruction, and other human activities.<sup>17</sup>

### Causes of Biodiversity Loss

Historically, most extinctions have been caused by human introduction of non-native species to small island ecosystems such as Polynesia. While invasive, or "alien," species still contribute to the global loss of biodiversity, contemporary biodiversity loss generally results from habitat loss and overharvesting.<sup>18</sup>

Habitat loss occurs in two ways. The first is through the conversion of forest and other ecosystems to cropland. Today, approximately 12% of the earth's non-ice surface is cropland. Tropical systems have had the greatest rate of cropland expansion, increasing by 48,000 square km (greater than the total area of Maryland) per year between 1999-2008. Each biome within tropical regions (e.g. drylands, broadleaf forests, and grasslands) had

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<sup>13</sup> Convention on Biological Diversity, "Why we are losing biodiversity," updated 24 April 2010, available at <http://www.cbd.int/2010/biodiversity/#tab=1>.

<sup>14</sup> Alan Molumby, "The History of Biodiversity of Life on Earth," PowerPoint slides from the University of Illinois, Chicago, 13 May 2004, <http://www.uic.edu/classes/bios/bios101/historyoflife/>.

<sup>15</sup> Petra Tschakert, Karl Simmerer and Brian King, "A Historical Perspective of Biodiversity Loss," Department of Geography at Penn State-e-Education Institute, 2012, <https://www.e-education.psu.edu/geog030/node/393>.

<sup>16</sup> Mace, *et al.*, "Biodiversity," pp. 79-81.

<sup>17</sup> Jared M. Diamond, *Collapse: How Societies Choose to Fail or Succeed* (New York: Viking, 2005). For a summary and review of the book, see Malcolm Gladwell, "The Vanishing," *New Yorker*, 3 January 2005, [http://www.newyorker.com/archive/2005/01/03/050103crbo\\_books](http://www.newyorker.com/archive/2005/01/03/050103crbo_books).

<sup>18</sup> Mace, *et al.*, "Biodiversity," pp. 79-81. See also "Why we are losing biodiversity," Convention on Biological Diversity website, available at <http://www.cbd.int/2010/biodiversity/#tab=1>, accessed 20 July 2014.

## Montana Model UN High School Conference

croplands that comprised 4-17% of their area, except in broadleaf forests and drylands, where croplands represented 62-94% and approximately 22% of each biome's land respectively.<sup>19</sup>

Habitat loss also occurs through damage and pollution. For example, 30-35 percent of critical marine environments – such as seagrasses, mangroves, and coral reefs – have been damaged by overuse or industrial development, or polluted by chemicals or debris.<sup>20</sup> In recent years, the Gulf of Mexico and other parts of the world's oceans have been affected by chemical fertilizers, which create “dead zones.”<sup>21</sup> In addition, huge rafts of floating trash trap fish and alter their biochemistry.<sup>22</sup>

Overharvesting refers to the practice of harvesting plants and animals at a faster rate than they reproduce. To avoid this requires knowledge of the species in question and alternative food and income sources. According to the FAO, nearly 70% of fish stocks have reached full capacity for fishing, are overfished, or are depleted.<sup>23</sup> According to conservation groups, demand for ivory is so high that poachers kill 30,000-38,000 elephants per year in Africa. This included the killing of a “beloved” Kenyan elephant named Satao with extraordinarily large tusks in May 2014. Only 472,000-690,000 African elephants live today, down from about 5 million in the 1930s-1940s<sup>24</sup>

While habitat loss has replaced the introduction of exotics (non-native species) as the main cause of extinction, invasive alien species continue to threaten biodiversity worldwide by causing severe problems in the ecosystems they invade or into which they are purposefully introduced. Virtually all ecosystems have suffered from invasion. This problem is likely to increase with global trade and tourism.<sup>25</sup>

A more recent cause of biodiversity loss and extinction is climate change. According to the Millennium Assessment team, mountain, island, and peninsula species are vulnerable to changes in weather patterns, and coastal habitats such as mangroves, coral reefs and wetlands are at risk from rising sea levels.<sup>26</sup> In addition, increasing water temperatures have already affected marine environments and fish. Because climate change predictions are tentative, the exact long-term consequences are difficult to predict and protect against.<sup>27</sup>

### Protecting Biodiversity

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<sup>19</sup> Ben Phalan et al., “Crop Expansion and Conservation Priorities in Tropical Countries,” *Plos One*, 8:1 (January 2013), p.4; [journal available online]; [http://www.unep.org/PDF/PressReleases/PLoS\\_ONE.pdf](http://www.unep.org/PDF/PressReleases/PLoS_ONE.pdf).

<sup>20</sup> “On Biodiversity day, UN Chief Calls for Greater Protection of the World’s Oceans,” UN News Centre, May 22, 2012, available at [http://www.un.org/apps/news/story.asp?NewsID=42057&Cr=Biodiversity&Cr1=#.UF3\\_8o2PXSg](http://www.un.org/apps/news/story.asp?NewsID=42057&Cr=Biodiversity&Cr1=#.UF3_8o2PXSg).

<sup>21</sup> Monica Bruckner, “The Gulf of Mexico Dead Zone,” Carlton College Science Education Resource Center, updated 9 October 2012, <http://serc.carleton.edu/microbelife/topics/deadzone/index.html>.

<sup>22</sup> Paul Rogers, “Giant vortex of floating trash swirls in Pacific,” *San Jose Mercury News*, 4 August 2009, [http://seattletimes.com/html/nationworld/2009593728\\_garbage04.html](http://seattletimes.com/html/nationworld/2009593728_garbage04.html).

<sup>23</sup> Convention on Biological Diversity, “Marine and Coastal Diversity: What’s the Problem,” available at <http://www.cbd.int/marine/problem.shtml>, accessed 22 July 2014.

<sup>24</sup> Christine Dell’Amore, “Beloved African Elephant Killed for Ivory – ‘Monumental Loss’,” *National Geographic*, 16 June 2014, available at <http://news.nationalgeographic.com/news/2014/06/140616-elephants-tusker-satao-poachers-killed-animals-africa-science/>.

<sup>25</sup> “What Threatens our Biodiversity,” Natural History Museum, London,, <http://www.nhm.ac.uk/nature-online/biodiversity/what-is-threatening-biodiversity/index.html>, accessed 24 July 2014.

<sup>26</sup> Mace, *et al.*, “Biodiversity,” p. 80.

<sup>27</sup> “What Threatens our Biodiversity.”

## Montana Model UN High School Conference

Given the causes of biodiversity loss, the means to protect it are clear. Scientists, citizens, businesses, and UN member states could cooperate to prevent the introduction of non-native species, to preserve and restore habitats, to prevent overharvesting, and to prevent and respond to climate change. Yet this is often easier said than done, due to lack of scientific knowledge, lack of economic incentives, and other political priorities.

One way to spur cooperation could be to educate people and states about the contribution that biodiversity makes to human prosperity. According to environmental economist Pavan Sukhdev, biodiversity loss costs the world between £1.2 and £2.8 trillion (\$2.1 to \$4.75 trillion) per year. These result from lost consumption of food and drink, loss of medicinal and industrial materials, and loss of “ecological services” such as clean air and water. In addition, there is the intangible contribution of biological diversity to leisure and culture.<sup>28</sup> With global GDP estimated at \$87 trillion in 2013, this represents a loss of between 1.4-3.2% of global GDP per year.<sup>29</sup> Over time, the size of this economic loss is likely to grow as biodiversity losses accumulate and climate change accelerates.

In 2005, the scientists and other experts involved in the Millennium Ecosystem Assessment (MA) argued that to ensure that ecosystems continue to provide “services” that contribute to human well-being, it is vital to maintain “stocks” of “natural capital.”<sup>30</sup>

In 2007, environment ministers from the governments of the G8+5 countries agreed to “initiate the process of analyzing the global economic benefit of biological diversity, the costs of the loss of biodiversity and the failure to take protective measures versus the costs of effective conservation.” The result was the creation of The Economics of Ecosystems and Biodiversity Study (TEEB), which has delivered a series of reports addressing the economics of biodiversity and specifically measuring economic costs of biodiversity loss versus protection.<sup>31</sup>

Traditionally, biodiversity preservation has involved domestic legislation and international treaties to protect certain genetic strains, populations, and species, either by penalizing their overuse or destruction or by establishing seed banks, natural parks or reserves, and zoos. Many countries now have some legislation to protect endangered species and have set aside land to prevent biodiversity loss. In addition, some countries have launched conservation biology degrees and jobs to increase understanding and seek answers. According to Thomas Lovejoy, an American conservation biologist, in 1965, when he began working in the Amazon, “there was one national forest and one demarcated indigenous reserve. Now, 50 percent [of the Amazon] is under some form of protection.”<sup>32</sup> According to Lovejoy, education and activism have been vital to slowing biodiversity losses in that region.

According to experts on biodiversity conservation, growing understanding of the role of each species in its native ecosystem and of the likely effects of climate change mean that current notions of conserving communities through reserves and zoos will soon be obsolete. Instead, “new, dynamic conservation strategies” are needed.<sup>33</sup> For example, to protect the whales and other marine predators that now migrate along the California coast, it is insufficient to declare a fixed reserve because as water temperatures rise and weather patterns change, the animals

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<sup>28</sup> “Why Conserve Biodiversity,” Natural History Museum, London,, <http://www.nhm.ac.uk/nature-online/biodiversity/why- conserve-biodiversity/index.html>, accessed 17 July 2014.

<sup>29</sup> CIA World Factbook, “World: Economy,” accessed 23 July 2014, <https://www.cia.gov/library/publications/the-world-factbook/geos/xx.html>.

<sup>30</sup> Mace, *et al.*, “Biodiversity,” p. 80.

<sup>31</sup> Pavan Sukhdev *et al.*, “Mainstreaming the Economics of Nature: A Synthesis of the Approach,” *The Economics of Ecosystems and Biodiversity Study* (TEEB), 2010, p.3, available at <http://www.unep.org/pdf/LinkClick.pdf>.

<sup>32</sup> Simon Romero and John M. Broder, “Progress on the Sidelines as Rio Conference Ends,” *New York Times*, 23 June 2012, [http://www.nytimes.com/2012/06/24/world/americas/rio20-conference-ends-with-some-progress-on-the-sidelines.html?\\_r=1](http://www.nytimes.com/2012/06/24/world/americas/rio20-conference-ends-with-some-progress-on-the-sidelines.html?_r=1).

<sup>33</sup> L. Hannah, *et al.*, “Conservation of Biodiversity in a Changing Climate,” *Conservation Biology*, 16, January 18, 2012.

## Montana Model UN High School Conference

will venture farther afield.<sup>34</sup> The UN has also begun to promote the “ecosystem approach” to biodiversity. This approach aims to “manage entire ecosystems, keeping in mind that all their components (including ourselves) are interconnected. Its main objectives are the conservation and sustainable use of biodiversity in an equitable way” by recognizing that each component in an ecosystem is interconnected.<sup>35</sup>

Given the contribution that biodiversity makes to human prosperity, one of the key challenges is to enable humans to continue to use biological resources without impeding the ability of plants, animals, and ecosystems to survive at sustainable levels. An example of this approach is the concept of natural forest management. Natural forest management modifies current logging and farming practices by supporting restoration of degraded lands and non-timber uses for some forests.<sup>36</sup>

Involving business in biodiversity preservation is also essential, both because of the demand businesses present for biological resources and because of the funds they possess that they could use to preserve biodiversity and prevent and respond to climate change. Several major multinationals including Microsoft, Eni (an Italian oil firm), and Femsa (a Latin American soft-drink bottler) have made commitments to reduce their carbon emissions.<sup>37</sup>

### ***Previous Committee Work on This Topic***

In 1992 UN Member States attended the Rio Earth Summit, where states formulated the Convention of Biological Diversity (CBD) to encourage national and international strategies for the conservation and sustainable use of biological diversity. In 1993, the CBD entered into force.<sup>38</sup> The Convention “recognizes that biological diversity is about more than plants, animals and microorganisms and their ecosystems. Biodiversity according to the convention includes the need for food security, medicines, fresh air and water, shelter and a clean and healthy environment.”<sup>39</sup> In addition, the CBD calls for the equitable worldwide sharing of the benefits of genetic resources.<sup>40</sup> At the same time, however, the CBD acknowledges each country’s right “to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.”<sup>41</sup>

UN agencies that monitor biodiversity challenges and compliance with the CBD and that raise funds to improve protection include the UN Development Program (UNDP), the UN Environment Program (UNEP) and the Global Environmental Facility (GEF), all which report regularly to the General Assembly.

In 2010, state parties to the CBD established the Aichi Biodiversity Targets, five goals to be reached between 2011 and 2020. The goals, each of which has subsidiary targets, are to:

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<sup>34</sup> Juliet Eilperin, “Climate change will shift marine predators’ habitat, study says,” *Washington Post*, 23 September 2012, [http://www.washingtonpost.com/national/health-science/climate-change-will-shift-marine-predators-habitat-study-says/2012/09/23/3dbc5ae8-0507-11e2-8102-ebee9c66e190\\_story.html](http://www.washingtonpost.com/national/health-science/climate-change-will-shift-marine-predators-habitat-study-says/2012/09/23/3dbc5ae8-0507-11e2-8102-ebee9c66e190_story.html).

<sup>35</sup> United Nations, “Ecosystem Approach,” Convention on Biological Diversity, available at <http://www.cbd.int/2011-2020/learn/factsheets/>, accessed 21 July 2014.

<sup>36</sup> Kamaljit Bawa and Reinmar Seidler, “Natural Forest Management and Conservation of Biodiversity in Tropical Forests,” *Conservation Biology*, 12:1 (February 1998).

<sup>37</sup> Romero and Broder, “Progress on the Sidelines as Rio Conference Ends.”

<sup>38</sup> CBD, “History of the Convention.”

<sup>39</sup> “Rio+20: Interview with Ed Norton, UN Goodwill Ambassador for Biodiversity,” UN News Centre, (June 21, 2012), available online at <http://www.un.org/apps/news/story.asp?NewsID=42302#.UF31oY2PXSg>

<sup>40</sup> CBD, “Text of the CBD,” Article 1.

<sup>41</sup> CBD, “Text of the CBD,” Article 3.



## Montana Model UN High School Conference

- A. Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society
- B. Reduce the direct pressures on biodiversity and promote sustainable use
- C. Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity
- D. Enhance the benefits to all from biodiversity and ecosystem services
- E. Enhance implementation through participatory planning, knowledge management and capacity building.<sup>42</sup>

Aichi participants also agreed to develop and submit National Biodiversity Strategies and Action Plans (NBSAPs). As of July 2014, most UN member states (179 of the UN's 193 member states and 92% of CBD parties) have developed NBSAPs.<sup>43</sup>

In 2010, some states also negotiated the Nagoya Protocol, a binding commitment to the CBD's goal of equitable sharing of genetic resources. On 14 July, Uruguay became the 50<sup>th</sup> state to ratify the treaty. Thus, the treaty will enter into force on October 12, 2014, 90 days after the deposition of its 50<sup>th</sup> ratification.<sup>44</sup>

In support of the Aichi Targets, the General Assembly has proclaimed 2011-2020 to be the International Decade of Biodiversity.<sup>45</sup> In addition, since 1993, the GA has proclaimed each May 22 to be the International Day for Biological Diversity. In May 2014, Secretary-General Ban Ki-moon marked the day by highlighting the danger that climate change and the loss of biodiversity on small island nations.<sup>46</sup>

On June 2012, the UN hosted the Conference on Sustainable Development in Rio de Janeiro, Brazil. The purpose of the conference, also called Rio+20, was to extend and enforce the CBD and other environmental agreements first made at the 1992 Rio conference. The gathering included nearly 50,000 participants and 100 heads of state and resulted in a 283 paragraph agreement entitled "The Future We Want."<sup>47</sup> With regard to biodiversity, conference participants stated that:

We reaffirm the intrinsic value of biological diversity, as well as the ecological, genetic, social, economic, scientific, educational, cultural, recreational, and aesthetic values of biological diversity and its critical role in maintaining ecosystems that provide essential services, which are critical foundations for sustainable development and human well-being. We recognize the severity of the global loss of biodiversity and the degradation of ecosystems and emphasize that these undermine global development, affecting food security and nutrition, the provision and access to water and the health of the rural poor and of people worldwide, including present and future generations...<sup>48</sup>

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<sup>42</sup> CBD, "Aichi Biodiversity Targets," <http://www.cbd.int/sp/targets/>.

<sup>43</sup> CBD, "National Biodiversity Strategies and Action Plans (NBSAPs)," accessed 24 September 2012, <http://www.cbd.int/nbsap/>.

<sup>44</sup> CBD, "Status of Signature, and ratification, acceptance, approval or accession," Nagoya Protocol, Convention on Biological Diversity, accessed 24 September 2012, <http://www.cbd.int/abs/nagoya-protocol/signatories/>.

<sup>45</sup> United Nations, "United Nations Decade on Biodiversity, 2011-2020," <http://www.cbd.int/2011-2020/goals/>.

<sup>46</sup> Ban Ki-Moon, "Message on the International Day for Biological Diversity," CBD website,, 22 May, 2014, available at <http://www.cbd.int/idb/image/2014/messages/idb-2014-message-unsd.pdf>.

<sup>47</sup> UN Conference on Sustainable Development, "The Future We Want," June 23, 2012, <http://www.uncsd2012.org/content/documents/727The%20Future%20We%20Want%2019%20June%201230pm.pdf>

<sup>48</sup> United Nations, "Report of the United Nations Conference on Sustainable Development," Rio de Janeiro, Brazil, 20-22 June 2012, item 197, p. 38, <http://www.uncsd2012.org/content/documents/814UNCSd%20REPORT%20final%20revs.pdf>.

## Montana Model UN High School Conference

While there were some promising unilateral commitments at Rio+20, including Maldives' announcement that it would become the "world's largest marine reserve...by 2017," due to financial problems and other political priorities the US and other developed countries refused to make any new or binding multilateral commitments. As a result, the conference met with "withering criticism."<sup>49</sup> In July 2012, the General Assembly Plenary endorsed the Rio+20 outcome document, "despite reservations."<sup>50</sup>

In recent years, UN General Assembly resolutions have focused on reaffirming and promoting the CBD. For instance, in December 2013, the GA passed Resolution 68/214 (A/RES/68/214), which called upon states to fulfill the obligations of the CBD and ratify the treaty and its protocols if they had not done so. It further requested that states take these actions with consideration of the 2011-2020 strategic plan and take into consideration economic and social factors such as transferring technology to developing states, and implementing "gender considerations" into their national strategies.<sup>51</sup>

In April 2014, UN Member States also began meetings to discuss a new treaty to ensure the conservation and sustainable use of "marine biodiversity" outside of countries' oceanic claims, outlined in the UN Convention on the Laws of the Sea. In regard to the potential new instrument, Secretary-General Ban Ki-Moon stated that "[i]f we are to fully benefit from the oceans, we must reverse the degradation of the marine environment due to pollution, overexploitation and acidification,"<sup>52</sup>

### **Conclusion**

According to environmental economist Pavan Sukhdev, "Experiments with controlled environments have shown that we cannot easily build ecosystems to support ourselves."<sup>53</sup> Biosphere2, the most advanced of these experiments, quickly failed due to lack of food, insufficient oxygen, and conflict among the participants.<sup>54</sup>

How can the GA-2 encourage UN member states to make concrete commitments to protect biodiversity loss and restore damaged ecosystems so that human and Earth survival and prosperity can be assured for centuries to come? As you write your position paper on this topic, consider the following questions:

- What are the biological resources and challenges of your country? How much biodiversity does it have now, how much has it lost, and how much is threatened by habitat loss, overharvesting, introduction of non-native species, and/or climate change?
- What is your country currently doing to protect its biodiversity and the stability of the regional ecosystems it inhabits? For example, has your country passed laws protecting certain species? Has it cooperated with its neighbors to establish transboundary reserves?
- What is your country doing to contribute to biodiversity loss? Does it purchase oil drilled from offshore platforms that contribute to loss of coral reefs? Do its citizens over consume endangered species?
- Has your country ratified the Convention on Biological Diversity? If not, why not and what would it take to encourage your country to do so? If so, is it complying with CBD provisions?

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<sup>49</sup> Romero and Broder, "Progress on the Sidelines as Rio Conference Ends."

<sup>50</sup> UN General Assembly "Despite Reservations, General Assembly Endorses Rio+20 Outcome Document: Will Study Modalities for its Implementation, Budgetary Implications," UN Department of Public Information, 27 July 2012, <http://www.un.org/News/Press/docs//2012/ga11264.doc.htm>.

<sup>51</sup> UN General Assembly Resolution 68/214, available at [http://www.un.org/en/ga/search/view\\_doc.asp?symbol=A/RES/68/214](http://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/68/214).

<sup>52</sup> UN News Centre, "At UN, Countries to Consider Need for Global Instrument to Protect Marine Biodiversity," *United Nations*, 2 April 2014, available at <http://www.un.org/apps/news/story.asp?NewsID=47492#.U9H25PldXlu>.

<sup>53</sup> Why Conserve Biodiversity?"

<sup>54</sup> Kara Rogers, "Two Years Under Glass: The First Biosphere 2 Mission," *Encyclopedia Britannica* blog, 26 September 2011, <http://www.britannica.com/blogs/2011/09/years-glass-biosphere-2-mission/>.



## Montana Model UN High School Conference

- Does your country support the Aichi agreements and the Nagoya Protocol? Why or why not?
- What can the GA do to address biodiversity loss while at the same time considering the economic and other needs of member states?
- How should the GA balance the need for equitable sharing of the world's biological resources with the right of each nation to exploit its own resources?
- What should UN member states' priorities be: to increase scientific knowledge, reduce habitat loss, reduce overharvesting, reduce introduction of non-native species, and/or address climate change? In pursuing these objectives, what specific policies and programs should the GA endorse?

### ***Recommended Reading***

“Biogeographic Region: The distribution boundaries of flora and fauna.” *Encyclopedia Britannica*. Available at <http://www.britannica.com/EBchecked/topic/65890/biogeographic-region/70681/The-distribution-boundaries-of-flora-and-fauna?anchor=toC70681>.

This page discusses and provides a map of the major floral regions of the world. On the *Encyclopedia Britannica* page for your country, you can read about its climate, flora, and fauna.

Convention on Biological Diversity. “Country Profiles.” Available at <http://www.cbd.int/countries/>.

This page includes a drop down list of countries to select from. Use the list to find your country, and read about factors such as its current ratification of international agreements on biodiversity, national strategies, and major issues and challenges the state is facing related to the issue of biodiversity.

Convention on Biological Diversity. “Fact Sheets of the Convention on Biological Diversity.” Available at <http://www.cbd.int/2011-2020/learn/factsheets/>.

This page features short fact sheets on key issues and strategies (e.g. the ecosystem approach) related to biodiversity. Explore the fact sheets that interest you, and use the link at the top of the page to download all of the factsheets to assist you in developing ideas for working papers.

Rosenthal, Elisabeth. “Near Arctic, Seed Vault Is a Fort Knox of Food.” *New York Times*. 29 February 2008. Available at <http://www.nytimes.com/2008/02/29/world/europe/29seeds.html>

This article discusses the formation of the Global Seed Vault, an international effort to protect as many plant seeds to protect biodiversity and food availability from war, natural disaster, and climate change.

Sukhdev, Pavan, *et al.* “Mainstreaming the Economics of Nature: A Synthesis of the Approach,” *The Economics of Ecosystems and Biodiversity Study* (TEEB). 2010. Available at <http://www.unep.org/pdf/LinkClick.pdf>.

This study is an international initiative to call attention to the global economic benefits of biodiversity, highlight the growing costs of biodiversity loss and ecosystem degradation, and coordinate expertise.

UN Conference on Sustainable Development. “The Future We Want.” June 23, 2012. Available at <http://www.uncsd2012.org/content/documents/727The%20Future%20We%20Want%2019%20June%2012%2030pm.pdf>

Paragraphs 197-204 of this document summarize the unbinding statements about biodiversity that UN member states endorsed at the recent Rio+20 Conference.

United Nations Development Programme. “MDG Progress Reports.” Available at <http://www.undp.org/content/undp/en/home/librarypage/mdg/mdg-reports/>.

On this page, you can read country reports on the Millennium Development Goals. Goal 7 directly addresses biodiversity issues such as deforestation and overfishing. Other goals pertain to challenges (such as hunger, poverty, and health) that could worsen with further reductions in biodiversity.