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## Science, Values and People: The Three Factors that Will Define the Next Generation of International Conservation Agreements

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## INVITED ARTICLE

# *Science, Values and People: The Three Factors that Will Define the Next Generation of International Conservation Agreements*

Alexander Gillespie\*

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### **Abstract**

This paper is concerned with three emerging issues that define the way in which international conservation law moves forward in the coming decades. The three issues are those related to the use of science to frame regimes; the use of philosophy to examine the values of what is trying to be achieved; and the use of politics to ensure that local communities are linked to conservation efforts. Consideration of each of these three areas is relatively recent, none of them having being at the forefront of conservation considerations of international importance in the past. In the future, this is likely to change.

**Keywords:** Conservation, Science, Values, Communities

## 1. INTRODUCTION

This brief paper is concerned with three emerging issues that will, individually and collectively, define the way in which international conservation law moves forward in the coming decades. This paper is not focused upon the large-scale policy gaps in this area, such as those relating to conservation on the high seas, compliance deficits or emerging environmental threats such as nutrient pollution. Rather, it seeks to draw out three issues which run through all conservation agreements. The three issues are those related to the use of science to frame regimes; the use of philosophy to examine the values of what is trying to be achieved; and the use of politics to ensure that local communities are linked to conservation efforts. Consideration of each of these three areas is relatively recent, with none of them being at the forefront of conservation considerations of international importance in the past. In the future, this is likely to change.

## 2. SCIENCE

Species, although being only one level in the hierarchy of life, are the cornerstone of studies on biodiversity. Taxonomy is the classification of species. Scholars have been studying these classifications since antiquity. Although the ability of two individuals within a group to reproduce is a key determinant for the classification of species,

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there is no scientific consensus on the exact criteria for species determination. This is especially so as developments in diagnostic analysis are forcing us to rethink the classification of species and their associated conservation status. However, there are currently at least 26 published concepts of what constitutes a species.<sup>1</sup> This diversity of views reflects the fact that many contemporary scientists wish to replace the Linnaeus system with one that is more robust, such as classification via deoxyribonucleic acid (DNA) sequencing.<sup>2</sup> Such sequencing can allow scientific access into every micro-organism, animal or plant to see the vast pieces of information in their genetic codes that were hammered into existence by an astronomical number of mutations and episodes of natural selection over the course of thousands or millions of years of evolution. DNA analysis can also be of fundamental importance in changing the way in which compliance is monitored because, previously, samples of species rarely could be identified exactly to allow conservation status to be adduced. For example, in 2009 genetic analysis showed 46% of 250 samples obtained from Japan's take of whales were from North Pacific minke whales, which were not the whales they intended to target. Further research in 2010 demonstrated that a separate Iberian harbour porpoise population had been identified within a group of porpoises that already had a threatened conservation status.<sup>3</sup> This identification meant that this species, which was more threatened than the group to which it originally was linked, had to be given a stringent conservation plan.<sup>4</sup>

By the beginning of the twenty-first century, about 1.75 million species of plants, animals, fungi, and micro-organisms have been identified and given a name.<sup>5</sup> This is a haphazard process and there is no central register for *all* of the species that have so far been identified or named within agreed nomenclature. An accompanying difficulty is created by how little is actually known about biodiversity on Earth – it is estimated that there are somewhere between 5 and 120 million different species on Earth. While most of the large or spectacular species have been discovered, there are considerable gaps in other areas. This is particularly so as the species become physically smaller or recede deeper into the oceans. Because of these gaps, many conservation assessments are very limited. For example, the International Union for the Conservation of Nature (IUCN)'s Red List of Threatened Species,<sup>6</sup> although covering over 16,000 species, covers less than 3% of the world's estimated species.

The solution to the 'taxonomic impediment' is the Global Taxonomy Initiative (GTI)<sup>7</sup> under which all parties to the Convention on Biological Diversity (CBD)<sup>8</sup> have pledged their commitment to enhance their identification and monitoring of species.

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<sup>1</sup> See A. Gillespie, *Conservation, Biodiversity and International Law* (Edward Elgar, 2011), at pp. 10–11.

<sup>2</sup> *Ibid.*, at pp. 11–13.

<sup>3</sup> *Ibid.*, at p. 12.

<sup>4</sup> International Whaling Committee, 'Report of the Scientific Committee' (IWC, 2010), Doc. IWC/63/Rep 1, at pp. 5–6, available at: [http://iwcoffice.org/\\_documents/sci\\_com/SCRepFiles2011/63-Rep1-with%20covers.pdf](http://iwcoffice.org/_documents/sci_com/SCRepFiles2011/63-Rep1-with%20covers.pdf); see also 'Whale Forensics', *New Scientist*, 3 Oct. 2009, at pp. 4–5.

<sup>5</sup> Gillespie, n. 1 above, at pp. 17–18.

<sup>6</sup> Available at: <http://www.iucnredlist.org>.

<sup>7</sup> Available at: <http://www.cbd.int/gti>.

<sup>8</sup> Rio de Janeiro (Brazil), 5 June 1992, in force 29 Dec. 1993, available at: <http://www.cbd.int/convention/text>.

The Global Taxonomy Initiative is a flagship programme of the CBD. Attempts to increase taxonomical knowledge are tied to national and thematic programmes with clear deadlines, and this work, although progressing slowly, is moving in the right direction. However, the intersection of the results of such work within international conservation law is often less than progressive. The reason for this is that nomenclature debates are mirrored not only in science, but also in law (although the latter often has little regard for the former), as nomenclature can directly affect which species are covered and which are not. Some progressive conventions have adopted a flexible approach where nomenclature is both evolving and may be subject to change. For example, in the 1996 Inter-American Convention for the Protection and Conservation of Sea Turtles,<sup>9</sup> the categories of sea turtle that the Convention covers are listed in an Annex; but it is specifically noted that ‘due to the wide variety of common names, even within the same State, this list should not be considered exhaustive’.<sup>10</sup>

Less progressive regimes require a complete renegotiation of the agreement so that changes in nomenclature can be explicitly adopted by the parties. This can be a slow process. At one extreme, each time a new scientific change is noted the parties can deal with it as a standard amendment to the annexes, as is the case with the Convention on International Trade in Endangered Species of Flora and Fauna (CITES).<sup>11</sup> At the other extreme, the parties may have to meet again and renegotiate the actual agreement. For example, while the original 1936 Convention on Migratory Birds and Game Mammals<sup>12</sup> between the United States (US) and Mexico originally covered only 31 bird species, it was not until 1972 that an additional 33 species were added.<sup>13</sup> Worst case scenarios arise where parties refuse to accept a conservation agreement unless each species is explicitly identified and subject to clear agreement. The International Whaling Commission (IWC)<sup>14</sup> is the exemplar of this whereby some countries have argued that, although modern science now recognizes 76 types of cetacean species, their agreement only covers the 17 that were recognized at the time the regime was signed.

Although there is uncertainty over how many species exist and how to incorporate these into existing and emerging agreements, the key locations with the greatest concentrations of species – such as tropical rainforests or coral reefs (known as ‘hotspots’) – are recognized. Through the use of science, it is now possible to show that there are 32 recognized hotspots. The 32 sites represent only 2.3 million square kilometres, or 1.45% of the land surface of the planet. These places contain 43.8% of all plants on Earth and

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<sup>9</sup> Caracas (Venezuela), 1 Dec. 1996, in force 2 May 2001, available at: <http://www.iacseaturtle.org>.

<sup>10</sup> Ibid., footnote to Annex I.

<sup>11</sup> Washington, DC (USA), 3 Mar. 1973, in force 1 July 1975, available at: <http://www.cites.org>. See CITES ‘Standard Nomenclature’ Resolution 12.11 (2010), available at: <http://www.cites.org/eng/res/12/12-11R15.php>.

<sup>12</sup> Mexico City (Mexico), 7 Feb. 1936, in force 15 Mar. 1937, available at: [http://www.fws.gov/le/pdffiles/Mexico\\_Mig\\_Bird\\_Treaty.pdf](http://www.fws.gov/le/pdffiles/Mexico_Mig_Bird_Treaty.pdf).

<sup>13</sup> Ibid., Art. 4., amendment 10 Mar. 1972. For discussion, see M. Cioc, *The Game of Conservation: International Treaties to Protect the World’s Migratory Animals* (Ohio University Press, 2009), at pp. 58–62.

<sup>14</sup> Available at: <http://iwcoffice.org>.

42% of all land vertebrates. They also contain 35.5% of the global total of non-fish vertebrates.<sup>15</sup> Despite the obvious merit to focus on the protection of these areas, the only regime which actively targets the conservation of hotspots (or ‘areas of rich biological values’) is the World Heritage Convention (WHC).<sup>16</sup> All of the other regimes that deal with protected areas of international importance inscribe protected areas for a multitude of other values – and not necessarily because of their scientific precedence as a biological hotspot.

This proliferation of regimes and reasons to protect areas has resulted in a clear growth in the protection of natural sites of importance to such an extent that, by the early part of the twenty-first century, there were 122,512 protected areas. This is the equivalent of nearly 13% of the Earth’s land surface. If marine protected areas are included in the calculation, 18.8 million square kilometres of the Earth fall within protected areas. Although this figure is impressive, there is great philosophical and political debate over how to classify protected areas.<sup>17</sup>

The IUCN has attempted to resolve this problem by introducing a six-level classification system by which types of protected area can be categorized. Some international organizations have approved the schema, others have not. Category I areas are primarily free from human interaction, with an exception for scientific research. Category II areas are national parks with limited public access for recreational activities. Category III areas are designated as ‘natural monuments’. Category IV encompasses habitat or species management areas; in global terms, these sites are the most popular type of protected places. Category V areas are protected areas that are carefully regulated, but allow forms of extraction. The most difficult debate is whether to allow forestry within Category V areas. A large number of countries and international organizations – in particular, the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention)<sup>18</sup> and the Man and the Biosphere (MAB) Programme<sup>19</sup> – partly utilize Category V classifications. This attraction is because theoretically, in some cases it may be possible to both protect and exploit (within limitations) an area at the same time. Category VI areas go one step further, allowing resources within an area to be actively managed, within limits. These categories, despite the utility that would flow from them, are not popular in international policy.<sup>20</sup>

### 3. VALUES

The necessity to protect biodiversity out of self-interest is a very long-standing recognition. The most obvious direct human interests in the conservation of species are in

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<sup>15</sup> R. Mittermeier, *et al.*, *Hotspots: The Earth’s Biologically Richest and Most Endangered Terrestrial Ecoregions* (Conservation International, 2008), at pp. 21–7.

<sup>16</sup> Convention concerning the Protection of the World Cultural and Natural Heritage, Paris (France), 23 Nov. 1972, in force 17 Dec. 1975, available at: <http://whc.unesco.org/en/conventiontext>.

<sup>17</sup> Gillespie, n. 1 above, at pp. 36–7.

<sup>18</sup> Ramsar (Iran), 2 Feb. 1971, in force 21 Dec. 1975, available at: <http://www.ramsar.org>.

<sup>19</sup> See MAB website at: <http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/man-and-biosphere-programme>.

<sup>20</sup> Gillespie, n. 1 above, at pp. 42–5.

terms of food and medicine. Although the vast majority of these benefits come from unadulterated species, the genetic modification of species is likely to increase these benefits in the future. The indirect benefits of biodiversity can be seen at both the macro and micro levels. The macro benefits of conservation range from the overall protection of the ecosystem to large-scale conservation of areas like marine protected areas. Micro benefits range from the value of species as indicators of environmental change to the individual pollination efforts of a billion plus honeybees, or the value of a species for its keystone role (in that other species rely upon it for their own existence).<sup>21</sup>

Aside from the scientific and political values that the conservation of all such species represents, it is their economic value on which domestic, regional and international attention is focused. Tourism is one of the most direct tangible economic values in this regard. Many of these values are now recognized within international environmental law. At the broadest level, it is the CBD that is leading the way in the recognition of the economic value of biodiversity. In large part, this is because it is an obligation under the CBD that each contracting party shall, as far as possible and as appropriate, adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity.<sup>22</sup> Accordingly, the parties to the CBD have undertaken a number of studies on the economic valuation of biodiversity and have encouraged all the signatories to ensure adequate incorporation of market and non-market values of biological diversity into plans, policies, and programmes at local, regional, and international levels, where appropriate.<sup>23</sup> Internalization of the economic costs of environmental considerations, so that markets are not distorted, is a foremost concern in this area. Therefore, the parties to the CBD have agreed, *inter alia*, to identify, study, and voluntarily confront such perverse incentives. They have also agreed to put more emphasis on the assessment of the values of biodiversity and associated ecosystem services.<sup>24</sup>

The core of such thinking is that all biological resources should reflect their total economic value (TEV), and that perverse incentives that distort such value should not be encouraged.<sup>25</sup> The TEV is the cumulative economic value of all aspects of biodiversity, not just the obvious consumptive values. On the largest possible scale, it was estimated that the biodiversity and ecosystems that deliver crucial services to humankind – from food security to keeping waters clean, buffering against extreme weather, providing medicines, to recreation and adding foundations to human

<sup>21</sup> Food and Agriculture Organization (FAO), *Rapid Assessment of Pollinators' Status* (FAO, 2009), available at: <http://www.fao.org/agriculture/crops/news-events-bulletins/detail/tr/item/8902/icode/en>.

<sup>22</sup> CBD, n. 8 above, Art. 11.

<sup>23</sup> See CBD COP Decisions VII/9 (2004); IV/10 (2002); V/15 (2000); V/3 (2000), and III/18 (1998); all available at: <http://www.cbd.int/decisions/cop>.

<sup>24</sup> See CBD COP Decision X/44 (2010) on 'Incentive Measures'. Note also the earlier CBD COP Decision IX/6 (2008) on the same topic, and para. 2 of Decision IX/11 (2008) on 'Review of Implementation of Articles 20 and 21'. All documents available at: <http://www.cbd.int/decisions/cop>.

<sup>25</sup> A. Gillespie, *International Environmental Law, Policy and Ethics* (Oxford University Press, 2000), Chapter 7.

culture – are worth between US\$ 21 and 72 trillion every year. This is broadly comparable to the World Gross National Income of US\$ 58 trillion in 2008.<sup>26</sup> In 2005, it was estimated that the economic worth of biodiversity as derived from trade statistics was US\$ 332,489 million. Of this sum, US\$ 190,000 million was related to timber, US\$ 81,529 million to fisheries, and US\$ 60,959 million to other wildlife.<sup>27</sup>

However, these figures reflect only the consumptive side of the potential economic value for such species. TEV attempts to re-orientate this analysis so that a fuller appreciation of the other economic values of all wildlife and biodiversity is also apparent and thus different decisions on utilization may be undertaken. Therefore, the TEV of a forest is not just the value of its extracted timber, but is rather its value as selectively and sustainably extracted timber in addition to the economic values of non-timber forest products, biodiversity, genetic information, forest land conversion, watershed protection, carbon storage and sequestration, tourism and recreational values, amenity values, option values, and existence values. The Food and Agriculture Organization followed the logic of this type of thinking in its 2009 ‘State of the World’s Forests Report’ in that the value of forests is now explicitly taken to include not just its timber values, but also those of non-wood forest products and the environmental services provided by forests.<sup>28</sup> With such thinking, one of the most comprehensive studies to date, which examined the marketed and non-marketed economic values associated with eight Mediterranean countries, found that timber and fuel-wood generally accounted for less than a third of the TEV of forests in each country. Values associated with non-wood forest products, recreation, hunting, watershed protection, carbon sequestration, and passive uses accounted for between 25% and 96% of the TEV.

Further studies in 2010 suggested that annual losses as a result of deforestation and forest degradation alone may equate to losses of US\$ 2 trillion to over US\$ 4.5 trillion alone.<sup>29</sup> These could be secured by an annual investment of just US\$ 45 billion: a 100 to 1 return.<sup>30</sup> Despite such impressive economic modelling and policy discussion at the CBD, the only international organization responsible for protected areas that has really attempted to take a broader view of economic value when implementing its decisions is the Ramsar Convention.<sup>31</sup>

Whilst most international environmental regimes have failed to deal with TEV, most have come to understand, utilize and promote the direct economic values of biodiversity when linked to the industry of tourism. Wildlife tourism is the exemplar in

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<sup>26</sup> United Nations Environment Programme (UNEP), *Biodiversity Outlook 3* (UNEP, 2010), at pp. 3–4; and UNEP, *Dead Planet, Living Planet* (UNEP, 2010), at pp. 5–8.

<sup>27</sup> M. Engler, ‘The Value of International Wildlife Trade’ (2008) 22(1) *TRAFFIC Bulletin*, at pp. 4–5.

<sup>28</sup> FAO, *State of the World’s Forests* (FAO, 2009), available at: <http://www.fao.org/docrep/011/i0350e/i0350e00.htm>.

<sup>29</sup> Gillespie, n. 1 above, at pp. 106–11 and 115–18.

<sup>30</sup> UNEP, *Biodiversity Outlook 3* (UNEP, 2010), at pp. 3–4; UNEP, *Dead Planet, Living Planet* (UNEP, 2010), at pp. 5–8; Millennium Ecosystem Assessment, *Ecosystems and Human Well-Being* (Island Press, 2005), at pp. 40–1.

<sup>31</sup> See n. 18 above. For the reflection of this principle in Ramsar Resolutions, see Resolutions 8.4 (2002), 8.34 (2002), 8.23 (2002), 8.25 (2002), 8.40 (2002), 7.15 (1999), 7.16 (1999), 6.10 (1996), 2.3 (1984), and 1.6 (1980) on ‘Assessment of Wetland Values’, available at: [http://www.ramsar.org/cda/en/ramsar-documents-resol/main/ramsar/1-31-107\\_4000\\_0\\_\\_](http://www.ramsar.org/cda/en/ramsar-documents-resol/main/ramsar/1-31-107_4000_0__).

this area, which is not surprising when it is recognized that between 20 to 40% of all tourists have an interest in some kind of nature tourism. Key international institutions such as the Global Environment Facility (GEF)<sup>32</sup> have actively encouraged such growth. This encouragement can be seen in 76 GEF projects with eco-tourism components, encompassing 542 protected areas and supported by over US\$ 500 million in financing from the GEF.<sup>33</sup> Regimes such as the WHC have become the magnets for such places.<sup>34</sup> At the end of the twentieth century, 63 million people were visiting 116 natural world heritage sites annually. Fifteen sites recorded over one million visitors per year (eight of these in the US), with the Great Smokey Mountains having the highest number (9,265,667). Only 14 natural sites had no visitors (as a result of war, access, or government policy to discourage). A total of 31 World Heritage natural sites in the US, Canada, Australia, and New Zealand accommodated over 52 million visitors each year. For the 30 sites in Africa for which data are available, the average visitation numbers were 22,705 per year, while the average for the 16 sites in Canada and the US amounted to 2.6 million per year.<sup>35</sup>

The economic value that visiting areas can generate is also often supplemented with either the consumptive or non-consumptive use of wildlife. For example, in the late-1990s, Zimbabwe raised some US\$ 254 million through sustainable sport hunting, followed by South Africa at US\$ 140 million, and Tanzania at US\$ 100 million. In Botswana, hunters are willing to pay up to US\$ 30,000 to shoot a lion and in Zimbabwe £15,000 to kill an elephant. Such sums in Pakistan have meant that the locals have gone to great lengths to ensure the survival of the animal population, which has now risen in population terms from around 200 individuals when trophy hunting first started, to 3,136 in 2007.<sup>36</sup> Non-consumptive utilization can also generate remarkably large sums. For example, in the Congo (prior to the civil war), gorilla watching operations were generating over US\$ 1 million per year in tourist income, with gorilla tourism becoming Rwanda's top earner of foreign currency from 2006 onwards.<sup>37</sup> Sea turtles and their nesting grounds are also strong magnets for tourists. Each Hawksbill turtle is estimated to be worth US\$ 30,000 to the local resort economy, whilst by 2008 the whale-watching industry was reaping US\$ 2.1 billion per year.<sup>38</sup>

Whilst the international community clearly has come to embrace the economic value of both places and species – nationally, regionally and internationally – the broader debates about the (non-economic) value of biodiversity have been somewhat more nuanced. In the twenty-first century, the philosophical value that best encompasses

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<sup>32</sup> Available at: <http://www.thegef.org>.

<sup>33</sup> GEF, *Making a Visible Difference in Our World* (GEF, 2005), at p. 29, available at: <http://www.thegef.org/gef/node/1578>.

<sup>34</sup> See n. 16 above.

<sup>35</sup> GEF, n. 33 above, at pp. 22, 24, 27 and 29.

<sup>36</sup> 'A Trophy for Conservation' (2008) 49 *SPECIES: Newsletter of the IUCN Species Survival Commission*, at p. 35; R. Barnett and C. Patterson, *Sport Hunting in the Southern African Development Community (SADC) Region: An Overview* (TRAFFIC East/Southern Africa, 2005), at p. 3.

<sup>37</sup> 'Preservation Pays', *New Scientist*, 4 July 2009, at p. 4.

<sup>38</sup> E. Hoyt, *The State of Whalewatching* (IFAW, 2008), at p. 3; D. Newsome, *et al.*, *Wildlife Tourism* (Channel View Publications, 2005), at pp. 122–7.



the practices for protecting species is the ‘life ethic’. This ethic contends that all of Nature’s self-replicating species, irrespective of considerations of sentience, are inherently valuable and therefore worthy of ethical consideration. Exactly what this means, however, is not always clear as it needs to be interpreted on a number of different levels. Getting to this point has been a slow process, with the first international agreements in this area being traceable to the nineteenth century, and the protection of species being justified only because of the direct economic benefits.<sup>39</sup> By the turn of the twentieth century, conservation objectives had moved towards conserving species because they were threatened with extinction and, following strong international developments after the Second World War, the legal obligation to conserve endangered oceanic species became remarkably clear.<sup>40</sup> This was especially so in the 1970s, when CITES,<sup>41</sup> the Convention on Migratory Species of Wild Animals (CMS),<sup>42</sup> and the Bern Convention on the Conservation of European Wildlife and Natural Habitats<sup>43</sup> were specifically created to seek to achieve this goal. This situation was widened only in 1992, when the CBD was created to cover all species of biodiversity, and the parties agreed to seek conservation as well as sustainable use and equitable sharing of the associated benefits.

Despite this widening of focus, the conservation objectives and ethical overlap remain prominent. This is evident in two areas. First, international conservation ambitions have been supplementing the traditional focus on mega-fauna and increasingly coming to encompass all forms of life, including plants and insects. The Pollinator Initiative<sup>44</sup> and the Global Strategy for Plant Conservation<sup>45</sup> are exemplars of this additional focus. Second, the CBD has attempted to tie its conservation objectives to specific targets, thus making the ethical goal measurable.<sup>46</sup> The international target for the conservation side of this equation was to achieve, by 2010, ‘a significant reduction of the current rate of biodiversity loss at the global, regional and national levels’.<sup>47</sup> Although the 2010 target was not achieved, the international community galvanized its intentions and established new targets in 2020 for species, ecosystems, and protected areas. The collective goal of the 2020 target is to take effective and urgent action to halt the loss of biodiversity in order to ensure that, by 2020, ecosystems are resilient and continue to provide essential services, thereby, *inter alia*, ‘securing the planet’s variety of life’.<sup>48</sup>

Despite there now being a clear international consensus that it is necessary to secure the variety of life on Earth, there is no international convention for the protection of animals *per se*, although the Organization for Animal Health (OIE) has

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<sup>39</sup> Gillespie, n. 1 above, at pp. 127–9.

<sup>40</sup> *Ibid.*, at pp. 128–30.

<sup>41</sup> See n. 11 above.

<sup>42</sup> Bonn (Germany), 23 June 1979, in force 1 Nov. 1983, available at: <http://www.cms.int>.

<sup>43</sup> Bern (Switzerland), 19 Sept. 1979, in force 1 June 1982, available at: [http://www.coe.int/t/dg4/culture/heritage/nature/bern/default\\_en.asp](http://www.coe.int/t/dg4/culture/heritage/nature/bern/default_en.asp).

<sup>44</sup> Available at: <http://www.cbd.int/agro/pollinator.shtml>.

<sup>45</sup> Available at: <http://www.cbd.int/gspc>.

<sup>46</sup> Gillespie, n. 1 above, at pp. 132–4.

<sup>47</sup> CBD COP Decision VI/26 (2002) on ‘The 2010 Target’, available at: <http://www.cbd.int/decisions>.

<sup>48</sup> CBD COP Decision X/2 (2010) on ‘Strategic Plan for Biodiversity 2011–2020’, available at: <http://www.cbd.int/decisions>.

expressed an interest in developing a Universal Declaration on Animal Welfare.<sup>49</sup> However, beyond considerations of welfare, there are few clear developments; that is, the general rule in international law is that all species, if not endangered, may be exploited by lethal means. Even attempts to realize a high ethical relationship with the closest species to humanity, namely the Great Apes, have not eventuated, and the international goals in this area are couched around traditional ideals of preventing extinction. Similarly, with the protection of whales, the failure of the pro-preservation side to demonstrate that whales are somehow 'different' from other species has meant that pro-whaling countries believe there is nothing wrong with hunting whales if it can be done sustainably. This approach, that it is ethically permissible to utilize whales in a sustainable way (provided they are not endangered by the process), has strong reflections in the work of the IUCN on 'sustainable use'.<sup>50</sup> The IUCN advocacy of sustainable use has been rewarded with the recognition of the ideal within the CBD.<sup>51</sup> However, there is no preference over whether sustainable use should be consumptive or non-consumptive. The goal is to ensure that any use, consumptive or non-consumptive, does not lead to the long-term decline of the species. Whilst some international regimes have come to endorse this type of approach of 'sustainable use', others – like the CMS,<sup>52</sup> CITES,<sup>53</sup> and the IWC<sup>54</sup> – have all distanced themselves from the wider implications of the CBD debate on sustainable use.

Humane values are those which seek to reduce the unnecessary pain inflicted upon animals. The pursuit of humane values in international law can be seen in the areas of transport, trapping, and culling. CITES takes the humane transport of listed species seriously. It has increasingly sought to align its practices with the OIE in this area.<sup>55</sup> Likewise, the goal to minimize suffering to animals when culling is well recognized in practice, policy, and international law. In some instances, specific agreements have been made to control inhumane capture methods, as with leghold traps.<sup>56</sup> In other instances, the obligations to reduce time to death can be traced to individual regimes that date back over a hundred years. For example, the prohibition of both indiscriminate and inhumane killing of birds began in a bilateral sense with the 1875 Declaration of Austria/Hungary and Italy for the Protection of Birds Useful to

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<sup>49</sup> OIE Resolution XIV (2007) on 'Universal Declaration on Animal Welfare', available at: <http://www.oie.int>.

<sup>50</sup> IUCN Resolution 24 (1990), 'Conservation of Wildlife through Wise Use as a Renewable Natural Resource', Resolution of the 18th Session of the IUCN General Assembly, Perth, Australia, 28 Nov. to 5 Dec. 1990.

<sup>51</sup> CBD COP Decision V/24 (2000) on 'Sustainable Use as a Cross Cutting Issue', available at: <http://www.cbd.int/decisions>.

<sup>52</sup> At n. 42 above.

<sup>53</sup> At n. 11 above.

<sup>54</sup> At n. 14 above.

<sup>55</sup> CITES COP Decisions 14.58 and 14.59 (2007) on 'Transport of Live Specimens', available at: <http://www.cites.org/eng/dec/index.php>.

<sup>56</sup> See, e.g., the Agreement on International Humane Trapping Standards (AIHTS) between the European Community, Canada, and the Russian Federation; in force 1 June 1999, 37 *International Legal Materials* (1998) 532.

Agriculture, which outlawed the use of poison and narcotics to catch birds.<sup>57</sup> Additional hunting methods were restricted with the 1902 Convention on Birds Useful to Agriculture.<sup>58</sup> The culling methods of seals have been an ongoing international concern since 1957,<sup>59</sup> and attempts to improve the humaneness of hunting methods for whales can be traced to the 1958 United Nations Conference on the Law of Sea, which suggested that the killing of all marine life should be performed with the intention of sparing suffering 'to the greatest extent possible'.<sup>60</sup> In the last regard, successive improvements have been made in reducing the time to death for targeted whales, although these improvements do not always apply to aboriginal hunting.

Although humanity has not developed a non-consumptive approach to non-endangered species of animals, it has adopted a non-consumptive approach with regard to protected areas. The exemplar of the ethical choices in this area in the international context involved Antarctica. The decision to preserve Antarctica reflected a clear philosophical choice to value non-consumptive values over consumptive ones. Although this was a clear success for the advocacy of non-consumptive approaches, it is important to note that most protected areas are prized because of their economic, ecological, or scientific values. These are all values of direct and tangible interest to humanity. It is relatively rare for areas to be valued for less tangible qualities such as wilderness, aesthetics, or cultural importance. The exception to this is the WHC. On the question of aesthetics, the preference is for sites to be listed with aesthetic values as a supplementary, rather than solitary, value. Any human influence in the landscape may directly negate this value.

On the question of cultural values, the parties to the WHC have come to recognize that, in certain instances, to preserve an area is to preserve cultural identity. Accordingly, they have tried to pursue this goal with the protection of sacred groves and cultural landscapes. Both of these areas are of great importance to the conservation of biodiversity. For example, sacred groves contain biodiversity (typically forests), which are protected for their cultural and natural values; however, they are often inscribed only for one value. Thus, when the Osun-Osogbo Sacred Grove of Nigeria was placed on the World Heritage list in 2005, it was the art work to the goddess of fertility and its symbolic value to local peoples that resulted in its inscription under the cultural rather than the natural criteria.<sup>61</sup> Similarly, the Papahnaumokuakea (Hawaii) site of the US was inscribed in 2010, *inter alia*, for its importance of

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<sup>57</sup> Art. IX, reprinted in B. Rüster, D. Simma & M. Bock (eds.), *International Protection of the Environment: Treaties and Related Documents*, Vol. IV (Oceana, 1975), at p. 1561.

<sup>58</sup> Paris (France), 19 Mar. 1902, in force 11 May 1907, 102 *British and Foreign State Papers* 969, Art VII, available at: [http://eelink.net/~asilwildlife/bird\\_1902.html](http://eelink.net/~asilwildlife/bird_1902.html).

<sup>59</sup> The 1957 Interim Convention on the Conservation of North Pacific Fur Seals, Washington, DC (US), 9 Feb. 1957, in force 14 Oct. 1957, 314 *United Nations Treaty Series* 105, Art. IX(3).

<sup>60</sup> See UN Doc. A/CONF.13/L. 56 (1958).

<sup>61</sup> UNESCO, *The Importance of Sacred Natural Sites for Biodiversity Conservation* (UNESCO, 2003), at pp. 6–7 and 153–8; Millennium Ecosystem Assessment, *Ecosystems and Human Well-Being* (Island Press, 2005), at p. 44.

socio-cultural evolutionary patterns of beliefs and its profound understandings of sacred realms of life and death.<sup>62</sup>

The focus on cultural landscapes within the WHC has covered topics ranging from heritage canals through to specific regional themes such as the Sacred Mountains of Asia, the Asian Rice Culture and its Terraced Landscapes, the European Alps, and even more generalized cultural landscapes in the major areas of the world.<sup>63</sup> From such studies, the WHC Committee has gone on to list a number of cultural landscapes. The last of these was Mount Wutai, which was added in 2009 as a landscape and building ensemble illustrating the exceptional effect of imperial patronage over 1,000 years of history, in the way the mountain landscape was adorned with buildings, statuary, paintings, and steeples to celebrate its sanctity for Buddhists.<sup>64</sup>

#### 4. PEOPLE

The long-term success of conservation is directly linked to the meaningful participation of local populations, including those which are indigenous. For a long time this was not an accepted position. However, since the start of the twenty-first century, the idea that conservation cannot be achieved without the support of local populations has been accepted in most international organizations. The idea of ‘popular participation’ as a necessary ingredient of sustainable development was iterated in a number of international documents leading up to the 1992 Earth Summit and at Rio itself, where Principle 10 of the Rio Declaration on Environment and Development emphasized that ‘environmental issues are best handled with the participation of all concerned citizens, at the relevant levels’.<sup>65</sup> An ideal overlapping with the goal of popular participation is the preservation of knowledge, innovation, and the practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity. This ideal was iterated at the 2002 World Summit on Sustainable Development (WSSD)<sup>66</sup> following the adoption of this principle in the CBD,<sup>67</sup> and again by the United Nations General Assembly in 2010.<sup>68</sup> The goal is also evident in the 2007 United Nations Declaration on the Rights of Indigenous Peoples.<sup>69</sup> The

<sup>62</sup> WHC Decision 10/34.COM/8B (2010), available at: <http://whc.unesco.org/archive/2010/whc10-34com-8Be.pdf>.

<sup>63</sup> See P. Fowler, *World Heritage Cultural Landscapes* (UNESCO, 2003).

<sup>64</sup> WHC Decision 9/33.COM/8B (2008) on ‘Mount Wutai’, available at: <http://whc.unesco.org/archive/2009/whc09-33com-8Be.pdf>.

<sup>65</sup> Rio de Janeiro (Brazil), 14 June 1992; available at: <http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163>. See also UN Dept of Economic and Social Affairs, Division for Sustainable Development, *Agenda 21*, Chapters 3, 11 and 14, available at: <http://www.un.org/esa/dsd/agenda21>.

<sup>66</sup> Johannesburg (South Africa), 26 Aug. to 4 Sept. 2002; see para. 44, Sections J, L, and H of the WSSD Plan of Implementation, UN. Doc. A/CONF.199/20, available at: [http://www.johannesburgsummit.org/html/documents/summit\\_docs/2309\\_planfinal.htm](http://www.johannesburgsummit.org/html/documents/summit_docs/2309_planfinal.htm).

<sup>67</sup> At n. 8 above, Art. 8(j); see also Art. 1(c).

<sup>68</sup> UNGA Resolution 64/203 (2010), available at: <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N09/474/01/PDF/N0947401.pdf?OpenElement>.

<sup>69</sup> New York (NY), 13 Sept. 2007, available at: <http://www.un.org/esa/socdev/unpfii/en/declaration.html>.

Declaration recognized that such peoples have rights with regard to the conservation of natural resources which are important to them, as well as the maintenance of their ‘distinctive spiritual relationships with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources’.<sup>70</sup>

The ideals of popular participation, the active involvement of indigenous and/or local peoples, and the conservation of biodiversity all coincide with the preservation and management of threatened species and the area they inhabit. Although the linkages between local people, biodiversity, and protected areas are multifarious, the core idea is that conservation initiatives created in isolation of local populations risk failure in terms of their values, participation, or sharing of benefits. As the former WHC Director, Francesco Bandarin, stated:<sup>71</sup>

without the understanding and support of the public at large, without the respect and daily care of the local communities, which are the true custodians of World Heritage, no amount of funds or army of experts will suffice in protecting the sites.

The justification for including local communities in conservation is not merely philanthropic. It is also self-interested, since one of the most important factors for long-term success in conservation is having the buy-in of affected indigenous/traditional and/or local populations. Their support is necessary because disenfranchised traditional, indigenous and/or local communities may actively work against conservation goals which do not reflect their interests, or fail to deliver on the promises and/or expectations raised.<sup>72</sup> Because of these problems, it has been commonly stated that indigenous and/or local populations should be included directly and should ‘participate’<sup>73</sup> in all important decisions and outcomes related to protected areas.<sup>74</sup> This is especially so in terms of access and benefit-sharing when related to conservation goals. In 2008, the parties to the CBD emphasized this point particularly as a way to ensure conservation and help to combat poverty at the same time.<sup>75</sup> Such thinking has also come to permeate a number of conservation arrangements. For example, within the CMS Gorillas Agreement,<sup>76</sup> the importance of working with local communities to reduce detrimental human activities (such as the bushmeat trade) and increase positive activities (such as carefully managed eco-tourism) is

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<sup>70</sup> Ibid., Arts. 24 and 25.

<sup>71</sup> See UNESCO/WHC, ‘Summary Report of the 12<sup>th</sup> General Assembly of States Parties to the WHC’ (Doc. WHC-99/CONF.206/7), at p. 4, para. 20; available at: <http://whc.unesco.org/archive/1999/whc-99-conf206-7e.pdf>.

<sup>72</sup> See R. Damania, *et al.*, *A Future for Wild Tigers* (World Bank, 2008), at p. 15; and Birdlife, *State of the World’s Birds: Indicators for Our Changing World* (Birdlife, 2008), at p. 20.

<sup>73</sup> The spectrum of what ‘participate’ is or means is very wide. For the options in this area, see IUCN, *Guidelines for Management Planning of Protected Areas* (IUCN, 2003), pp. 57–61.

<sup>74</sup> See generally E. Kemf (ed.), *Indigenous Peoples and Protected Areas* (Earthscan, 1993).

<sup>75</sup> CBD COP Decision IX/18 (2008) on ‘Protected Areas’, Section A, para. 19; available at: <http://www.cbd.int/decisions/cop>.

<sup>76</sup> Agreement on the Conservation of Gorillas and Their Habitats (agreed under the auspices of the CMS, n. 42 above), Paris (France), 26 Oct. 2007, in force 1 June 2008, available at: <http://www.cms.int/species/gorillas/index.htm>.

strongly emphasized.<sup>77</sup> This emphasis is directly linked to the central message that the Great Apes are worth considerably more alive to the local communities than they are dead.<sup>78</sup>

It has taken many decades to reach this point. The process began in 1968 at the United Nations Educational, Scientific and Cultural Organization (UNESCO) Conference on the Use and Conservation of the Biosphere, when the importance of consultation with local communities was first emphasized.<sup>79</sup> The Man and the Biosphere Programme went on to give emphasis to the importance of substantive participation of local communities in biosphere reserves, especially after its revamp in the 1990s.<sup>80</sup> Since this point, the Programme has given direct instructions to help to identify relevant stakeholders. This is especially the case if the interested parties may have overlooked them.<sup>81</sup> The Ramsar parties also place a premium on the involvement of local communities through what it currently identified as 'Participatory Environmental Management'.<sup>82</sup> This premium is, in part, due to an earlier practice whereby local and/or indigenous involvement was taken for granted.<sup>83</sup>

The WHC recognizes that its parties 'shall', as far as possible and appropriate for each country, *inter alia*, 'adopt a general policy which aims to give the cultural and natural heritage a function in the life of the community'.<sup>84</sup> The foremost way that this goal has been furthered has been the facilitation of local participation with World Heritage sites. This facilitation has become increasingly common, as it has become apparent that local populations commonly surround, or are within, a large number of natural sites.<sup>85</sup> The WHC Committee has emphasized the importance of the sovereign authorities engaging and consulting with local peoples wherever appropriate, and seeking an equitable sharing of benefits derived from the sites, where possible. In some instances, such as those affecting the Virunga in the Democratic Republic of the Congo, the Committee has urged that the state party 'develop a strategy to share any profits, such as from tourism related to gorillas, with the local communities, in order to improve relations'.<sup>86</sup> Furthermore, in 2007, New Zealand argued that the interests of communities, be they local/traditional and/or indigenous, need to be taken into

<sup>77</sup> *Ibid.*, Arts. III(2)(k) and VIII(1).

<sup>78</sup> See S. Raven, *Assessment of the Solution-Orientated Research Needed to Promote a More Sustainable Bushmeat Trade in Central and West Africa* (DEFRA, 2002).

<sup>79</sup> UNESCO, *Use and Conservation of the Biosphere* (UNESCO, 1968), at p. 223.

<sup>80</sup> See UNESCO, *Seville Strategy and the Statutory Framework of the World Network*, available at: <http://unesdoc.unesco.org/images/0010/001038/103849Eb.pdf>.

<sup>81</sup> See UNESCO, *The Madrid Action Plan for Biosphere Reserves* (2008–2013), at p. 15, Target 10, available at: <http://unesdoc.unesco.org/images/0016/001633/163301e.pdf>.

<sup>82</sup> Ramsar COP Resolutions 8.36 (2002) on 'Participatory Environmental Management', and 8.14 (2002) on 'New Guidelines for Management Planning for Ramsar Sites', both available at: [http://www.ramsar.org/cda/en/ramsar-documents-resol-resolutions-of-8th/main/ramsar/1-31-107%5E21367\\_4000\\_0\\_\\_](http://www.ramsar.org/cda/en/ramsar-documents-resol-resolutions-of-8th/main/ramsar/1-31-107%5E21367_4000_0__).

<sup>83</sup> Ramsar COP Recommendation 6.3 (1996) on 'Involving Local and Indigenous People'; and Resolution 8.14 (2002), *ibid.*

<sup>84</sup> WHC, n. 16 above, Art. 5(a).

<sup>85</sup> M. Cattaneo & J. Trifoni, *The World Heritage Sites of UNESCO: Nature Sanctuaries* (WhiteStar, 2003), at pp. 16, 66, 70 and 100–1; L. Pressouyre, *The World Heritage Convention, Twenty Years Later* (UNESCO, 1992), at pp. 14–15, and 22.

<sup>86</sup> See WHC Decisions 32 COM 7A.3 (2008) and 30 COM 7A.7 (2006), both available at: <http://whc.unesco.org/en/decisions>.

account and ranked equally with the other strategic objectives of the WHC. This recognition, that the ‘role of communities in the implementation of the WHC’ needs to be enhanced, was warmly received by the Committee, and duly forwarded to the UNESCO General Assembly where it was formally adopted.<sup>87</sup>

## 5. CONCLUSION

In the last 30 years, international conservation law has advanced to a remarkable degree. In this regard, three aspects – pertaining to the use of *science* in establishing what is covered, *values* in debating why it is covered, and *communities* to help answer how something is conserved – are all notable. In each instance, considerations of what were once invisible have been brought to the forefront and are now visible. However, the response by the international community to each of these areas has been ad hoc, with a variety of approaches being adopted by a multitude of different regimes. This diversity is to be expected as international conservation law has only now reached a level of relative maturity in which these systematic considerations are now being openly debated. Whilst the eventual answers as to how each one of these three areas will be implemented are unknown, what is certain is that none of them can be ignored any longer.

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<sup>87</sup> Proposal for a ‘Fifth C’ to be Added to the Strategic Objectives, WHC-07/31 COM/13B. See also, 31 COM 13 B (2007) 31 COM 13 B. All documents available at: <http://whc.unesco.org/en/decisions>.