

# Nature Needs Half: A Necessary and Hopeful New Agenda for Protected Areas in North America and around the World

*Harvey Locke*

AMERICANS CELEBRATED A MILESTONE IN GLOBAL CONSERVATION THIS YEAR: the 50th anniversary of the Wilderness Act. For many, wilderness designated under it has become the gold standard of nature protection in the US. While few protected areas in the world can match designated wilderness in a US national park for ensuring nature's well-being, it is well to remember important cousins in the protected areas family. National and state parks, state wilderness areas, designated roadless areas in national forests, the national monuments in the Bureau of Land Management's national landscape conservation system, US Fish and Wildlife Service's national wildlife refuge system, the National Oceanic and Atmospheric Administration's (NOAA's) marine protected areas, tribal wilderness, and private lands set aside explicitly for nature conservation are all part of the nature protection clan. While more wilderness is devoutly to be wished in this celebratory year, wilderness alone will not be sufficient to save nature in all its glorious expressions. It is therefore timely to consider how much of all kinds of protected areas we need to ensure that nature and natural processes continue into the future.

In a world where humans are just one species interacting among many, we would not need protected areas. This was the case for most of human history. Now we need them, for it is well-settled scientifically that humanity's relationship with the natural world is in trouble. The Intergovernmental Panel on Climate Change (IPCC 2007) stated bluntly: "The resilience of many ecosystems is likely to be exceeded this century by an unprecedented combination of climate change, associated disturbances (e.g., flooding, drought, wildfire, insects, ocean acidification), and other global change drivers (e.g., land use change, pollution, over-exploitation of resources)." The human species has become so dominant that some argue we have entered a new geological age dominated not by the chemical and physical workings of the earth as they exist under their own motion from time to time but by us humans, and propose we call this new period the Anthropocene (Zalasiewicz et al. 2011).

This is not new. Our species' troubled relationship with nature has been widely understood for at least 25 years. In 1987 the United Nations published *Our Common Future*,

---

*The George Wright Forum*, vol. 31, no. 3, pp. 359-371 (2014).

© 2014 The George Wright Society. All rights reserved.

(No copyright is claimed for previously published material reprinted herein.)

ISSN 0732-4715. Please direct all permissions requests to [info@georgewright.org](mailto:info@georgewright.org).

known widely as the Brundtland Report (World Commission on Environment and Development 1987). It stated, “As the century closes, not only do vastly increased human numbers and their activities have that power [to alter planetary systems], but major unintended changes are occurring in the atmosphere, in soils, in waters, among plants and animals and in the relationships among all these.” A few years later, the “World Scientists’ Warning to Humanity,” which was signed by the majority of the living Nobel Prize winners in science at the time, said starkly:

Human beings and the natural world are on a collision course. Human activities inflict harsh and often irreversible damage on the environment and on critical resources. If not checked, many of our current practices put at serious risk the future that we wish for human society and the plant and animal kingdoms, and may so alter the living world that it will be unable to sustain life in the manner that we know. Fundamental changes are urgent if we are to avoid the collision our present course will bring about (Union of Concerned Scientists 1992).

The concerned scientists identified the need to bring environmentally damaging activities under control in order “to restore and protect the integrity of the earth’s systems we depend on” and stated that “we must halt deforestation, injury to and loss of agricultural land, and the loss of terrestrial and marine plant and animal species.”

### **The first global conservation targets for protected areas: 10 or 12%**

Protected areas were identified by the authors of the Brundtland Report as a critical response to the troubled relationship between humanity and the rest of nature. They called them “areas managed explicitly to conserve species and ecosystems” and stated:

Conservation of living natural resources—plants, animals, and micro-organisms, and the non-living elements of the environment on which they depend—is crucial for development. Today the conservation of wild living resources is on the agenda of governments: nearly 4 per cent of the Earth’s land area is managed explicitly to conserve species and ecosystems, and all but a small handful of countries have national parks.

The chapter concluded: “A consensus of professional opinion suggests that the total expanse of protected areas needs to be at least tripled if it is to constitute a representative sample of Earth’s ecosystems.” This led to the first widely accepted goals for protected areas. Depending on who did the math it became the 10% goal or the 12% goal for global protected areas. Note that the goal spoke to representation of ecosystems.

### **A global target emerges from the Convention on Biological Diversity**

The urgency of the scientific declarations in the late 1980s and early 1990s about humanity’s failing relationship with nature led to the Earth Summit in Rio de Janeiro in 1992. Many of the world’s political leaders attended. They signed two conventions intended to confront the integrated problems: the Framework Convention on Climate Change and the Convention on

Biological Diversity (CBD) (UN 2013). The objective of the Convention on Biological Diversity is “the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.” Biological diversity was defined as “the variability among living organisms from all sources including, inter alia, 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.” America declined to be party to the Convention on Biological Diversity. The rest of the world carried on but it has not gone well.

In the foreword to the 2010 Global Biodiversity Outlook 3, an assessment of the state and trends of biodiversity in the world, UN Secretary General Ban-Ki Moon summarizes the current state of global affairs: “In 2002, the world’s leaders agreed to achieve a significant reduction in the rate of biodiversity loss by 2010. Having reviewed all available evidence, including national reports submitted by Parties, this third edition of the Global Biodiversity Outlook concludes that the target has not been met” (Convention on Biological Diversity 2013).

In 2012 at Nagoya, Japan, the failure of this approach was recognized by the parties to the Convention on Biological Diversity and a more specific Target 11 for protected areas was set: “By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.”

While these references to protected areas in the broader landscape and connectivity are important new developments, no scientific rationale is given for the protected area targets of 17% land and 10% marine. Nor was a longer-term target set against which these might be considered mileposts.

In 1998, one of the fathers of conservation biology, Michael Soulé, and his then-student, M.A. Sanjayan, published a provocative paper titled “Conservation targets: Do they help?” in which they demonstrated that protecting only 10% of the earth would not protect biodiversity (Soulé and Sanjayan, 1998). No other paper has scientifically defended such low numerical targets.

### **What scientific analysis suggests protected area targets ought to be**

We should be asking ourselves one simple question: “What does nature need in order to conserve biodiversity and how do we get there given the desires of humans?” Strangely, that is not what has happened. Instead, the focus has been, “What are humans willing to spare?” This of course is political, not scientific. So what is the best scientific information on how much we should protect?

Noss and Cooperrider (1994) concluded that in most regions 25% to 75% (or on average 50%) of an area will need protection to maintain biodiversity and ecological processes. In 2003, a poetic suggestion for the amount of protected areas needed came from biologist and author E.O. Wilson, who called for: “Half the world for humanity, half for the rest of life,

to make a planet both self-sustaining and pleasant” (Wilson 2003). Tropical ecologist John Terborgh (2005) noted that half the world was degraded and called for the protection of the other half. Pressey et al. (2003) noted that “recent comprehensive conservation plans have delineated around 50% or more of regions for nature conservation.” Svancara et al. (2005) reviewed 159 articles reporting or proposing 222 conservation targets and assessed differences between policy-driven and evidence-based approaches. By evidence-based approaches they meant an adequate understanding and mapping of the distribution and viability of the conservation requirements of individual biodiversity features, such as species and vegetation types, and found that the average percentages of area recommended for evidence-based targets were nearly three times as high as those recommended in policy-driven approaches.

Rodriguez and Gaston (2001) considered the needs of species and found the minimum percentage of area needed to represent all species within a region increases with the number of targeted species, the size of selection units, and the level of species’ endemism, and stated that “the 10% target proposed by the IUCN is likely to be wholly insufficient, and that much larger fractions of area are estimated to be needed, especially in tropical regions.”

### **Regional studies from North America**

For regions such as the boreal forest of Alaska, there are widely accepted principles that tell us what we ought to protect. The Canadian Boreal Initiative coordinated 1,500 scientists from over 50 countries around the world to write to Canadian governments to urge protection of “in the range of half” of that country’s vast boreal forests (Boreal Scientists’ Letter 2007; Curry 2007). Their letter included the following succinct summary of the widely known conservation science:

The relatively intact state of Canada’s northern Boreal region provides an opportunity to implement conservation strategies to protect the region’s ecological integrity. The field of conservation biology identifies four objectives that must be achieved to ensure the long-term viability of an ecosystem: (1) all native ecosystem types must be represented in protected areas; (2) populations of all native species must be maintained in natural patterns of abundance and distribution; (3) ecological processes such as hydrological processes must be maintained; and (4) the resilience to short-term and long-term environmental change must be maintained. Achieving these objectives requires an extensive interconnected network of protected areas and sustainable management of the surrounding areas. Reviews of previous conservation planning initiatives provide further direction by indicating that protected areas should cover in the range of half of the landscape to achieve the objectives listed above.

Note that representation, the basis of the 10% or 12% goal that began with the Brundtland Report, remains fundamentally important but is only one of four elements needed to sustain ecosystems over time.

In 2001, the Greater Yellowstone Coalition engaged a team of experts to assess the amount of protected areas need in the Greater Yellowstone ecosystem (GYE). They ad-

dressed the four goals and concluded: “Our proposed portfolio, if fully protected and combined with existing protected areas (totaling 7,140,000 acres), would bring the total protected area in the GYE to 18,440,000 acres, nearly 70% of the ecosystem” (Noss et al. 2001).

Similarly, in the early 2000s The Nature Conservancy conducted conservation assessments of ecoregions across North America. These drew on regional experts and were focused on local conditions with the goal to identify the suite of conservation sites and strategies that will ensure the long-term survival of all viable native plant and animal species and natural communities in the ecoregion (basically the four goals noted above). The ecoregional plan for the Blue Mountains, which includes Central Idaho, southwestern Montana, and a portion of Oregon, recommended that 57% of the region be in protected areas (The Nature Conservancy 2000). The assessment done for the Florida peninsula concluded that 52% ought to be protected, while noting it left some gaps the report (The Nature Conservancy 2005). The portfolio of conservation sites came in at 47% on the California North Coast (The Nature Conservancy 2001). In 2004, The Nature Conservancy in the US and The Nature Conservancy of Canada concluded their expert-driven assessment of most of the area extending from the Peace River in British Columbia to the Clark Fork River in Montana. They concluded that 49.7% of the region should be in conservation areas, but noted this did not address connectivity needs for wide-ranging mammals (The Nature Conservancy of Canada 2004).

Traditional ecological knowledge combined with Western science has reached the same conclusion on at least one occasion. Grand Chief Herb Norwegian (2005) described a process in which elders were consulted about their traditional use of the boreal forests and mountains along the Mackenzie River in Canada’s Northwest Territories and developed a land-use plan that called for the conservation of more than half of the Dehcho region in an interconnected network of protected areas (Norwegian 2005).

A 2012 editorial in *Conservation Biology*, to which the present author contributed, surveyed several studies of the percentage of area needed and compared those results with politically derived targets. We noted that current political and convention targets tended to be much lower than those based on scientific assessment, review, and expert opinion, where the mid-point of the range of evidence-based assessments was slightly below 50% and called for a precautionary target of 50%. We concluded, “Nature needs at least 50% and it is time we said so” (Noss et al. 2012).

### **The meaning of protected area**

The United States has tended to chart its own course when it comes to protected areas. In 1989, a national assessment was done in the through US Geological Survey’s Gap Analysis Program (GAP). (Current statistics are online at <http://gapanalysis.usgs.gov/padus/protected-areas-stats/>.) It came up with four categories of lands:

- GAP Status 1: An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a natural state within which disturbance events (of natural type, frequency, intensity, and legacy) are allowed to proceed without interference or are mimicked through management.

- GAP Status 2: An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a primarily natural state, but which may receive uses or management practices that degrade the quality of existing natural communities, including suppression of natural disturbance.
- GAP Status 3: An area with permanent protection from conversion of natural land cover for the majority of area. It is subject to extractive uses of either broad, low-intensity type (e.g., logging) or localized intensive type (e.g., mining). It confers protection to federally listed endangered and threatened species throughout the area.
- GAP Status 4: An area with no known protection. The remaining area of a state (not designated as GAP Status 1–3) is classified as GAP Status 4. Status 4 areas are primarily private lands. They have no known public or private institutional mandates or legally recognized easements.

Gap 1 and Gap 2 would easily meet a standard for a protected area for the purposes of this paper. Gap 3 is more problematic as it involves resource extraction. Though the tendency for Americans has been to pay little attention to international discussions about protected areas, nonetheless the international norms, as promulgated through the CBD and the International Union for Conservation of Nature (IUCN), can be helpful to Americans grappling with ideas such as the meaning of protected area.

The CBD definition of protected area is “a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives.” This definition does not provide specific guidance about the range of protected area types that could be adapted to different situations. In the mid-2000s, IUCN’s World Commission on Protected Areas engaged in a multinational expert consultation process to update its guidelines for protected areas that culminated in a summit in Almeria, Spain, in 2007 (Dudley and Stolton 2008). That process came up with a useful definition of protected area: “A specifically delineated area designated and managed to achieve the conservation of nature and the maintenance of associated ecosystem services and cultural values through legal or other effective means” (Dudley 2008).

This definition includes the six categories of protected area that had already been recognized by IUCN for some time: strict nature reserve/wilderness area (Category I), national park (Category II), natural monument (Category III), habitat/species management area (Category IV), protected landscape/seascape (Category V), and managed resource protected area (Category VI). While some of these categories allow some resource extraction for local use, industrial activity is not included. This can be described as the difference between tapping sap from a maple or rubber tree and cutting trees down to feed to a pulp mill. Notably, there is a linked governance framework that can range from international, national, provincial, regional, municipal, private or indigenous as long as the area is managed by legal or other effective means.

Applied to the United States, the IUCN general definition would include the full suite of protected areas described in the opening paragraph of this essay. This would correspond to USGS’s Gap 1 and Gap 2 areas. When applied to a place like Boulder County, Colorado, we

find that through a mix of national parks, national forest wilderness areas, private land conservation, and open space maintained by the city of Boulder and Boulder County that over half of the county is protected in line with the IUCN definition of (cf. <http://natureneedshalf.org/case-studies/>).

### **Protecting half of the earth's lands and waters**

Conservation targets expressed in percentages can be misleading and will not be effective in protecting the full range of life on earth if they are rotely numerical or area- based. In other words, protecting all of Antarctica is an excellent idea, would materially enhance the percentage of the world designated as protected area, and would do great things for life there, but would do nothing for tigers, toucans, lions, or grizzly bears. To halt and eventually reverse the terrible trend demonstrated by successive editions of IUCN's *Red List of Threatened Species* (IUCN 2013b), we ought to apply across all ecoregions of the world the four broadly accepted conservation planning principles. To recap, those are: represent all native ecosystem types in protected areas as well as protect sufficient area to maintain populations of all native species in natural patterns of abundance and distribution, maintain ecological processes such as fire and flooding, and maintain resilience to short- and long-term environmental change.

The idea of protecting half gives a better sense of the order of magnitude of protected areas required than using the figure "50%," which might imply a mathematical formula of universal application. What is required is principled study and conservation planning based on each ecoregion's unique characteristics, followed by determined implementation of the results. When such rigorous study occurs it usually results in a finding that we should protect about half of any given ecoregion. Some noted conservation biologists have expressed private opinions to the author that that may well be too low a figure. Thus it would be most accurate and precautionary to say nature needs *at least* half.

### **Connectivity among protected areas**

In addition to the question of how much is needed in protected areas, there is the now-wide-spread scientific understanding that these areas must also be connected to each other to allow for gene flow and to adapt to climate change (Dudley 2008; Locke and Mackey 2009; Heller and Zavaleta 2009; Worboys et al. 2009; Nature 2011; Noss et al. 2012). Hodgson et al. (2009) issued an important reminder that connectivity is a supplement to, and not a substitute for, core protected areas.

### **Nature on the other half**

Lands outside of protected areas can be valuable for some species and are worthy of attention. They can provide connectivity between habitat patches and support migratory processes for birds and insects. Gap 3 lands can be critical to the survival of endangered species. Some species (e.g., white-tailed deer) even thrive in landscapes fragmented by humans and a few (e.g., Norway rats and rock doves) even thrive in high urban concentrations of humans. But many species are habitat specialists and human-altered habitats do not support them. Intensely cultivated lands on which chemically supported agriculture is practiced have very

low value for biodiversity. Humans on pasture lands outside of protected areas tend to have very low tolerance of species that compete with us for meat or forage for our domestic animals. Thus we kill them or erect impermeable fences to exclude them that also have the effect of fragmenting the landscape, which can terminate critically important seasonal migrations of large mammals. Humans outside protected areas often make large efforts to suppress inconvenient natural processes such as fire and flooding that are vital to the ecosystem dynamics on which many species depend. So while lands intensely used by humans support some threads of nature (and more nature-friendly practices should be encouraged on them), they cannot support the full tapestry of life. Simply put, we need to share the world with nature.

### **Self-censorship in the conservation community when it comes to targets**

The closing session at the ninth World Wilderness Congress, WILD 9 in Merida, Mexico (2009), called for the protection of at least half the world in an interconnected way (see <http://natureneedshalf.org>). Delegates from many countries were wildly enthused (Harman 2009). When those enthusiasts returned to other settings, self-censorship set in, along these lines: “Of course that is correct, but we will not be taken seriously” or “We must be realistic about what is politically achievable and that is not.” This self-censorship raises important questions about the role and function of ideas in society and of park professionals as social participants.

Ideas clearly expressed have the most power. We in the parks community have the best product in the world to sell—intact nature with its myriad benefits for our species. We have a rational foundation for our passions. The science is that nature needs about half. Some of our caution can no doubt be explained by the fact that many park professionals work for governments who set the policy context for their work. There is no mandate to state one’s own preferences and goals in such an institutional setting. That is entirely true and right. But this rationale does not apply to nongovernmental organizations (NGOs) whose role in civil society is to say the things that governments ought to do and to help find ways to bring that about.

The explanation for NGO caution could be found in the concern that the expression of ideas too radical will result in exclusion from participating in certain fora, to the detriment of one’s institution’s work or one’s own career. The concern is that it is better to be there in a less-than-perfect process than it is to be excluded or humiliated. Fear of the loss of such status or access is the motivation for self-censorship. This is a loser’s game.

A different but cynical explanation for self-censorship could be that NGOs are very invested in their programs and priorities and fear that their donor relations require them to keep inconvenient new ideas away. This would be shameful conduct and requires no further comment than that.

The basic problem with self-censorship in an NGO setting is that it focuses on the actors, not the outcome. That which is necessary for the conservation of all life should drive our behavior. If no one brings forward the best scientific knowledge of what is needed to achieve this goal, then we are doomed to fail. AIDS advocates cannot back down when sexual transmission of disease is denied by politicians, nor can doctors back down when the health effects of tobacco are denied, for to do so would fundamentally impair their cause. So it is



with advocates for nature conservation: we should insist on that which is necessary to keep nature healthy. We can do it politely and thoughtfully but do it we must.

Another possible explanation that does not involve self-censorship is that, after assessment, NGOs conclude that there is no possible way that such a goal as nature needs half could be met and therefore it should be discarded. The thinking could be that in some places with huge human populations and vast intensive agriculture, such a goal seems so fanciful as to be absurd. Though lower targets are known not to be sufficient, they are better than nothing and their deficiencies are better left unsaid. This approach is rooted in pessimism, but is called “realism” by its proponents. The problem is that such “realism” denies possibilities that are real without first taking the chance to bring them about. Hope is suspended and a dark future guaranteed.

### **Protecting at least half of the earth is a viable goal**

There are several places around the world in which the nature needs half goal has already been realized through public policy. In western North America, there are several examples of governmental action to protect at least half of a region. On Haida Gwaii, British Columbia (previously known as the Queen Charlotte Islands), a mix of national park, provincial park, and First Nations conservation has resulted in over 50% protection of the terrestrial system and an initial marine conservation area ([http://natureneedshalf.org/case studies](http://natureneedshalf.org/case-studies)). The Capital Regional District of Victoria, British Columbia, has set a goal of protecting at least 50% of its lands and waters after a public process that saw it explicitly “subscribing to the idea that nature needs half” (Capital Regional District 2012). Ontario committed in 2008 to protecting half of its north and has enshrined in its Far North Act a commitment to protect “at least 225,000 square kilometres [55,598,710 acres] of the Far North in an interconnected network of protected areas designated in community based land use plans” (Government of Ontario 2010). In 2014, Quebec Premier Philippe Couillard committed to protect half of that province’s vast north as part of its Plan Nord (Couillard 2014). Boulder County, Colorado, as noted above, is over 50% protected. Note the varied forms of governance types that have achieved the nature needs half goal.

The Seychelles archipelago is over 50% protected “as a contribution to fulfilling its obligations under the Convention on Biological Diversity” (IUCN 2013a). The Galapagos Islands of Ecuador are much more than 50% protected.

The Serengeti ecosystem in Tanzania and Kenya is over 50% protected. The Canadian Rockies biome in Alberta, Canada, is about 65% protected through a mix of national parks, provincial parks, and wilderness areas. The American portion of the Crown of the Continent Ecosystem in Montana is over 50% protected by national park and wilderness designation, and a similarly high percentage of park and wilderness areas is present in the core of the Greater Yellowstone ecosystem. It is no coincidence that these areas in the Yellowstone-to-Yukon region and East Africa still support all their native species.

An obvious retort to these examples is that they are areas that have received special attention and are far way from large population centers. As to receiving special attention, yes, they

have, and they should be taken as examples of how we should treat the whole world. In the US, these areas also do well economically. In fact, those western US counties with the highest amount of Gap 1 and Gap 2 protection on federal lands have the highest employment growth of counties in the entire rural West (Rasker et al. 2013). As to their distance from population centers, this raises a different concern. Is it impossible to do something like this in the crowded areas of places such as Europe, India, China, or the East Coast of North America?

We are unlikely ever to protect half of the best agricultural land that has been in production for centuries. We may not even want to because we like the food it produces. But so much marginal land has been brought into cultivation in the last 250 years that we could make enormous inroads in restoring it.

In eastern North America, most of western Massachusetts, Vermont, New Hampshire, and Quebec's Eastern Townships were denuded of forests by farmers, sheep grazers, loggers, and charcoal makers. But the land was marginal and largely abandoned as other lands became available. Today, there is extensive forest cover across the region and significant species recovery. In upstate New York, the 2 million-ha Adirondack Park was created in 1895 to recover cut-over lands whose degradation threatened downstream water quality. Today, just under half is managed as "forever wild" under the New York State constitution.

On the Indian subcontinent, nature needs half is a reasonable near-term goal along the length of the Western Ghats and has already been realized in part of the Himalayas (Locke 2014b). In fact, the ancient kingdom of Bhutan recently announced that it has achieved 50% protection by putting over 42% of its land in protected areas and over 8% in biological corridors (see [http://natureneedshalf.org/case\\_studies/Bhutan](http://natureneedshalf.org/case_studies/Bhutan); Bhutan Nature Conservation Division 2009).

The rewilding of Europe has occurred at a remarkable rate as marginal hill and mountain farms are being abandoned by a declining population. The corresponding recovery of large mammals in western Europe, including brown bears, is remarkable. Natura 2000 was a deliberate pan-European policy that increased Europe's protected areas to 20% and some jurisdictions, such as Germany, are seeking formally to protect wilderness.

Even where challenges are great, the short-term feasibility of an idea does not invalidate the idea. It simply shifts to becoming an aspirational goal.

### **A philosophical moment for the protected areas movement**

We in the nature conservation community are at a philosophical crossroads. No one who studies the global state of nature or the list of endangered species in the US could be satisfied. Indeed, things are bad and getting worse, with a few happy exceptions (IUCN 2013b).

At moments of philosophical crisis there are two ways one can turn. One is in the direction of deeper determination, higher aspiration, and courageous commitment to clear ideals. This is what the persecuted Christians did during the Roman Empire and ultimately converted its rulers to their way. This is what the US Civil Rights movement has done and continues to do, and that country now has a second-term African American president. This is what the nature needs half movement seeks to do: collectively assert a vision in which humanity returns to being one species among many that is humble enough to understand that

we must protect all life and the processes it depends on, both for own well-being and because it is ethically the right thing to do. It is about fixing the human relationship with nature by recognizing that any relationship needs mutuality to be healthy (Martin 2010). This is called “radical hope” because though the idea is clear, the course of action that will make it possible is not yet fully clear (Lear 2006).

The other road to follow is to decide that the goal of biodiversity conservation is impossible and to set a new agenda. Thus some postmodern conservationists consider this a time of defeat and that now is the moment to abandon traditional conservation goals based on parks and wilderness areas. Instead, the Green postmodernists would have us embrace the idea that we should convert the earth to a garden that serves the interests of local people and urban dwellers (Marvier et al. 2012). This of course would mean the end of inconvenient and difficult-to-protect species such as grizzly bears, tigers, lions, and elephants. It would also mean concerted efforts to prevent the natural and necessary but deeply disruptive process of renewal, such as fire and flooding (Locke 2014a).

The death of the wild in favor of the garden with *Homo sapiens* triumphant is no vision for those who proclaim to love nature. It will also inevitably be disastrous for the human species. We do not know how to run the world. It is time for our species to become humble and wise and to stop being greedy and clever (Locke 2013).

The philosopher Immanuel Kant summed up the human dilemma with two questions: *What can I know?* and *What ought I to do?* These are appropriate questions for conservationists in the 21st century. And we can answer them. We know that nature needs at least half. We ought to assert it even if it is not clear that we will succeed. Those who dared to dream of a Wilderness Act saw their dream come true fifty years ago. It is our turn to step up boldly for nature by fearlessly working to protect half the world in an interconnected way.

[Ed. note: This article was adapted by the author for The George Wright Forum. A previous version appeared in *Parks* 19:2 (2013).]

## References

- Bhutan Nature Conservation Division. 2009. NCD/Adm (02)/2009/1595, November 16.
- Boreal Scientists' Letter. 2007. Online at <http://www.borealcanada.ca/pr/05-14-2007-e.php>.
- Capital Regional District. 2012. *Regional Parks Strategic Plan, 2012–21*. Online at <http://www.crd.bc.ca/parks/documents/regionalparksstrategicplan.pdf>.
- Couillard, Philippe. 2014. Letter to Zhang Xinsheng and Julia Marton-Lefèvre, 11 November. See <http://www.pewtrusts.org/en/about/news-room/news/2014/11/21/world-parks-congress-hails-quebecs-boreal-forest-protections>.
- Curry, Bill. 2007. Scientists plead for protection of forests. *The Globe and Mail* [Toronto], 14 May.
- Dudley, Nigel, ed. 2008. *IUCN Guidelines for Applying Protected Area Management Categories*. Gland, Switzerland: IUCN.
- Dudley, Nigel, and Sue Stolton, 2008. *Defining Protected Areas*. Gland, Switzerland: IUCN.
- Harman, Greg. 2009. El Mensaje de Merida: Climate change isn't all about stuffing our collective tailpipe; restoring oceans of wilderness is just as vital to saving the planet. *San Antonio Current*, December 9.
- Heller, Nicole E., and Erica Zavaleta. 2009. Biodiversity management in the face of climate change: A review of 22 years of recommendations. *Biological Conservation* 142: 14–32.
- Hodgson, J.A., C.D. Thomas, B.A. Wintle, and A. Moilanen. 2009. Climate change, connectivity and conservation decision making: Back to basics. *Journal of Applied Ecology* 46(5): 964–969.

- IPCC [Intergovernmental Panel on Climate Change]. 2007. *Climate Change 2007: Impacts, Adaptation and Vulnerability*. Cambridge, UK: Cambridge University Press.
- IUCN [International Union for Conservation of Nature]. 2013a. Half of Seychelles has become protected. Online at [http://www.iucn.org/about/union/secretariat/offices/esaro/\\_news/?7922/Half-of-Seychelles-islands-become-protected](http://www.iucn.org/about/union/secretariat/offices/esaro/_news/?7922/Half-of-Seychelles-islands-become-protected).
- . 2013b. *Red List of Threatened Species*. Online at <http://www.iucnredlist.org>
- Lear, Johnathan. 2006. *Radical Hope: Ethics in the Face of Cultural Devastation*. Cambridge, MA: Harvard University Press.
- Locke, Harvey. 2013. Nature answers man. *Policy Options* (September–October), 36–42. (Institute for Research on Public Policy, Montreal.)
- . 2014a. Green postmodernism and the attempted hijacking of conservation. In *Keeping the Wild*, George Wuertner, Eileen Crist, and Tom Butler, eds. Washington, DC: Island Press, 146–162.
- . 2014b. India's opportunity: To lead the world in recognizing that nature needs half. *Sanctuary Asia* (February): 24–29.
- Locke, Harvey, and Brendan Mackey. 2009. The nature of the climate. *International Journal of Wilderness* 15(2): 7–13.
- Martin, Vance. 2010. Nature needs half. *Sanctuary Asia* (December).
- Marvier, Michelle, Robert Lalasz, and Peter Kareiva. 2012. Conservation in the Anthropocene: Beyond solitude and fragility. *Breakthrough Journal* (winter). (Breakthrough Institute, Oakland, CA.)
- Nature. 2011. Think big. (Editorial.) *Nature* 469: 131.
- The Nature Conservancy. 2000. *Middle Rockies–Blue Mountains Ecoregional Conservation Plan*. Online at <http://www.conservationgateway.org/ConservationPlanning/SettingPriorities/EcoregionalReports/Pages/ecoregional-reports.aspx>.
- . 2001. *California North Coast Ecoregional Plan*. Online at <http://www.conservationgateway.org/ConservationPlanning/SettingPriorities/EcoregionalReports/Pages/ecoregional-reports.aspx>.
- . 2005. *Florida Peninsula Ecoregional Plan*. Online at <http://www.conservationgateway.org/ConservationPlanning/SettingPriorities/EcoregionalReports/Pages/ecoregional-reports.aspx>.
- The Nature Conservancy of Canada. 2004. *Canadian Rockies Ecoregional Assessment, Version 2.0*. Online at [http://science.natureconservancy.ca/initiatives/blueprints/canrockies\\_w.php](http://science.natureconservancy.ca/initiatives/blueprints/canrockies_w.php).
- Neubauer, P., O.P. Jensen, J.A. Hutchings, and J.K. Baum. 2013. Resilience and recovery of overexploited marine populations. *Science* 340: 347–349.
- Norwegian, Herb. 2005. Dehcho First Nations, Canada. In *Protecting Wild Nature on Native Lands*, Julie Cajene, Vance Martin, and Terry Tanner, eds. Boulder, CO: WILD Foundation.
- Noss, Reed F., and Allen Y. Cooperrider. 1994. *Saving Nature's Legacy: Protecting and Restoring Biodiversity*. Washington, DC: Island Press.
- Noss, R.F., A. Dobson, R. Baldwin, P. Beier, D. DellaSala, J. Francis, H. Locke, K. Nowak, R. R. Lopez, C. Reining, S. Trombulak, and G. Tabor. 2012. Bolder thinking for conservation. *Conservation Biology* 26: 1–4.
- Noss, R.F., George Wuertner, Ken Vance-Borland, and Carlos Carrol. 2001. *A Biological Conservation Assessment of the Greater Yellowstone Ecosystem: Report to the Greater Yellowstone Coalition*. Corvallis, OR: Conservation Science, Inc.
- Government of Ontario. 2010. Far North of Ontario. Online at <https://www.ontario.ca/environment-and-energy/far-north-ontario>, and [http://www.e-laws.gov.on.ca/html/source/statutes/english/2010/elaws\\_src\\_s10018\\_e.htm](http://www.e-laws.gov.on.ca/html/source/statutes/english/2010/elaws_src_s10018_e.htm).
- Pressey, R.L., R.M. Cowling, and M. Rouget. 2003. Formulating conservation targets for biodiversity pattern and process in the Cape Floristic Region, South Africa. *Biological Conservation* 112: 99–127.
- Rasker, Ray, Patricia H. Gude, and Mark Delorey. 2013. The effect of protected federal lands in the non-metropolitan West. *Journal of Regional Analysis and Policy* 43(2): 110–122.
- Rodrigues, A.S.L., and K.J. Gaston. 2001. How large do reserve networks need to be? *Ecology Letters* 4: 602–609.
- Soulé, Michael, and M.A. Sanjayan. 1998. Conservation targets: Do they help? *Science* 279(5359): 2060–2061.
- Svancara, Leona K., Ree Brannon, J. Michael Scott, Craig R. Groves, Reed F. Noss, and Robert L. Pressey. 2005. Policy-driven versus evidence-based conservation: A review of political targets and biological needs. *BioScience* 55(11): 989–995.
- Union of Concerned Scientists. 1992. 1992 world scientists' warning to humanity. Online at <http://www.ucsusa.org/about/1992-world-scientists.html>.
- UN [United Nations]. 2013. United Nations Conference on Environment and Development (UNCED), Rio de Janeiro, 3–14 June 1992. Online at <http://www.un.org/geninfo/bp/enviro.html>.
- Wilson, E.O. 2003. *The Future of Life*. New York: Random House.

- Worboys, G., W. Francis, and M. Lockwood, eds. 2010. *Connectivity Conservation Management: A Global Guide*. London: Earthscan.
- World Commission on Environment and Development. 1987. *Our Common Future*. Oxford, UK: Oxford University Press.
- Zalasiewicz, Jan, Mark Williams, Alan Haywood and Michael Ellis, 2011. The Anthropocene: A new epoch of geological time? *Philosophical Transactions of Royal Society A* 369: 835–841.

**Harvey Locke**, WILD Foundation, 717 Poplar Avenue, Boulder, CO 80304; harvey@wild.org