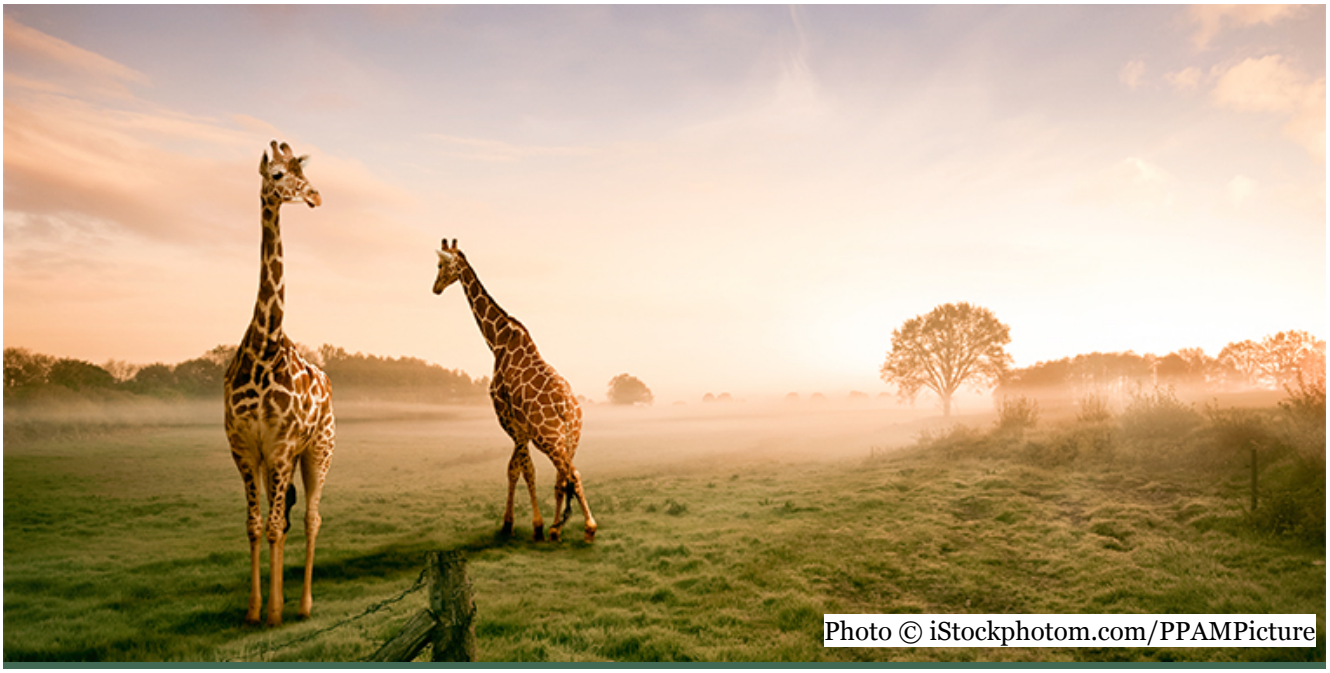
ENVISION 2050: THE FUTURE OF PROTECTED AREAS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WRITER
David Doody
@dlukedoody

Ensia senior editor

January 6, 2015 — The idea of setting aside areas of land and water to be protected against human activities has become a staple of the conservation movement. But with that movement itself at a crossroads, it's worth exploring just what protected areas will look like in the future.

For this third installment of our Envision 2050 series

(read the first two here), Ensia turned to five experts to find out what the coming decades will mean for this conservation practice, what they would like protected areas to be like in 2050 and what it would take to get there. Here's what we learned:

2050

A yearlong series imagining tomorrow's human systems through the eyes of today's experts

William Laurance: Avoiding a Fatal Future

Distinguished research professor, James Cook University, Cairns, Australia

Protected areas are a cornerstone of our efforts to protect nature, but I fear for their future.

I recently coordinated one of the largest-ever studies of the biological health of protected areas, surveying reserves across the African, American and Asia-Pacific tropics. Our verdict? About half of the parks we studied are doing reasonably well, but the other half are suffering.

The suffering reserves are losing not just a few species, but are plagued by sweeping alterations. Many reserves now have fewer top predators, large-bodied animals, specialized birds, amphibians, freshwater fish and old-growth trees than they did just two to three decades ago. At the same time, they're gaining invasive animals, weeds and disturbance-loving plants. Even human diseases are increasing.

These reserves are struggling in part because they have too few guards and too little on-the-ground

protection. The biggest direct threats to reserves are habitat disruption from illegal deforestation, logging, fires and overharvesting caused by chronic poaching or overexploitation of fuelwood and other natural products. Investing in protected areas to limit these threats pays big dividends.

However, what happens immediately around the reserves is also crucial. For example, 85 percent of the reserves we studied lost part or all of their surrounding forest cover in recent decades. In some places, farmlands or urban sprawl have marched right up to the borders of reserves.

This shows that protected areas and their biodiversity are intimately connected to their surrounding landscapes. If the habitats surrounding a reserve are trashed — as often happens — then the perils of isolation take over. Species are cut off from life-giving immigration and gene flow, or are persecuted when they stray beyond the margins of reserves. Local extinction is a frequent result.

In addition, environmental threats immediately outside protected areas have a way of leaking inside them. For example, a reserve encircled by illegal logging, mining and poaching typically suffers those same threats to a lesser degree inside its borders. Protected areas are like mirrors reflecting the health of their immediate surroundings.

Hence, we can't simply set aside nature reserves and forget about their surroundings. We need protected areas to be as big as possible, because bigger reserves are more resistant to outside threats. We should also establish buffer zones around reserves to help shield them from hostile surrounding land uses; and we must stop reserves

from becoming isolated wherever possible, by maintaining substantial reserve connectivity to other forested areas. We also need to promote less damaging land uses near reserves by engaging and benefiting local communities.

These will be serious challenges in a world struggling to meet the demands of a rapidly growing human populace. But if we want tropical protected areas to maintain their spectacular biodiversity, we simply cannot ignore these mounting external threats.

Rosaleen Duffy: War by Conservation

Professor of development studies, SOAS University of London

Conservation is entering a new phase. It is no longer fortress conservation, it is *war by conservation*, which is at odds with how we generally view protected areas and their role in conserving some of the world's most iconic species. This shift has been prompted by rising fears about increased poaching of elephants and rhinos in parts of sub-Saharan Africa. As a result, alliances of state agencies, private sector and conservation organizations are readily engaging in new offensives. In short: conservation is combining with security.

The recent claim that ivory is the "white gold of jihad" and funds al-Shabaab is instructive. This is poorly evidenced, and yet it has been repeated and rendered credible by the world's political elite (including Barack Obama, Hillary Clinton and Prince William) precisely because it fits existing

frameworks of understanding insecurity in the Horn of Africa. In Kenya, the nonprofit Tsavo Trust launched a project called StabilCon (Stabilisation through Conservation), which involves counterinsurgency techniques and surveillance networks; it claims it will offer a route to effective wildlife protection and regional political stabilization. WWF has contracted Maisha Consulting (a private security company) to provide security advice and install a network of remote surveillance cameras in Dzanga-Sangha national park in the Central African Republic. Zoological Society of London received $500,000 from Google to develop remote camera traps in Tsavo National Park in Kenya, while WWF received $5 million to trial the use of drones and other technological approaches to poaching in four (unnamed) sites. The practice is not confined to Africa, though: Drones are increasingly used in anti-poaching operations in India and for monitoring illegal fishing in Belize, for example.

This is not the kind of conservation I want to see, either now or in the future. While the poaching crisis demands urgent attention, militarization is not the answer in the longer term. It has the potential to be counterproductive, as people on the ground (including rangers) get swept up in a wider conflict.

Wildlife will not thrive if it has to rely on this level of military-style protection. What we need is a fundamental rethink of the strategy. A socially just approach would seek to address histories of exclusion and displacement to make way for protected areas. It would seek to redress the removal of ownership and access rights for communities that live with wildlife. It would also

take a more political view of conservation to engage more fully with issues of rural development, provision of greater opportunities and alternative livelihood strategies. The kind of conservation I want would put social justice at the heart of its mission, not counterinsurgency.

Michele Kuruc: Sustaining Life-sustaining Oceans

Acting senior vice president of marine conservation, WWF

We need a planet with healthy oceans — oceans that cradle biodiversity, are resilient to the impacts of climate change, and provide food and sustainable livelihoods. Beyond the intrinsic value of oceans and the life they sustain, humanity's well-being and prosperity depends on them. One billion people rely on fish as an important source of protein, and seafood supports the livelihoods of 10 to 12 percent of the world's population.

Given their importance, it may be surprising to know only about 2 percent of our oceans are protected, and only a small portion of these are considered well managed. In addition, there is variability in their performance — particularly ones that have restrictions on fishing (some of these benefit both fish and fishers, while others may only help one or the other).

WWF is seeking to understand that variability — moving beyond anecdote to evidence. We are investigating both the social and ecological impacts of marine protected areas over time in important

marine areas like the Coral Triangle in the western Pacific Ocean. Knowledge gained from such science will directly inform — and improve — marine protected area design and governance. By 2050, with the number of MPAs likely to have increased, I think we'll see those MPAs uniformly producing benefits for both people and nature.

MPAs should be considered one of the fundamental management tools required to stop further degradation of our oceans. But we will also need an integrated ocean management approach — one that blends strong conservation goals with current and future needs for coastal development and marine uses. There's a great example of that kind of thinking happening in Belize, where WWF has been working with partners and the government on a new coastal management plan — a science-based blueprint for sustainable management of their marine resources.

Efforts like this show how we can balance conservation with human needs. There is no question that oceans need to be protected for the benefit of all. Well-designed and -managed MPAs are a critical step to get us there.

Lawrence Jones-Walters: From Intrinsic Value to Socioeconomic Value

Head of biodiversity and policy, Alterra, Wageningen, The Netherlands

It is generally acknowledged that the first protected areas date back to prehistory, when land was delineated by our ancestors and separated from the rest so that it

could be protected for spiritual reasons. The idea that areas of land should be identified and in some way preserved for their natural value gained momentum in the Middle Ages with the establishment of hunting preserves and deer parks across Europe and Asia. Thus, the principle of drawing a line on a map to enclose an area of land so that there could be some control over its protection and management was established. By the beginning of the 19th century, the Romantic Movement had influenced decision-makers in society to designate the first protected areas purely for their intrinsic value, and soon after, the first site was designated for scientific value. This principle is now completely embedded in the way that we carry out spatial planning up to a global level, and has clearly delivered the successful protection and management of biodiversity (in particular in Europe, where almost 20 percent of terrestrial land area falls within the Natura 2000 series of special sites). It is therefore hard to see it being superseded by another model by the time we reach 2050.

What will clearly change is the rationale for their protection. Intrinsic value is increasingly being replaced by socioeconomic value as the reason for continuing to protect and maintain sites. Ecosystem services — the benefits provided by the natural environment to human well-being — are now seen as the principal driver for protecting nature, and we are already beginning to quantify the contribution to delivering ecosystem services that is made by protected areas. This could lead to the designation of new areas and, potentially, the abandonment of others. The missing piece in the jigsaw puzzle is the wider countryside around the protected areas. As well as delivering ecosystem services in its own right, this land needs to be managed to provide an

ecological framework within which protected areas remain viable for maintaining populations of species, habitats, and ecosystem goods and services. To get there we will need a new way of thinking about the management of our rural and peri-urban landscapes that integrates sectors such as agriculture, energy, transport and water management to provide sustainable decision-making.

Jeffrey McNeely: National Treasures

International conservation consultant; former chief scientist at the International Union for Conservation of Nature

Protected areas in 2050 will be considered national treasures because they are the last remaining reminders of the great wealth of nature that once covered much of our planet. The protected areas in some countries will also be seen as valuable living gene banks, containing unique genetic material that has continued to evolve and may be useful contributors to modern biotechnology (which has become a major industry). The PAs are attracting growing numbers of visitors that may sometimes lead to overcrowding. Many protected areas have become "islands" of biologically diverse habits, suffering from species loss, inbreeding and invasive species (the latter an externality of global trade).

It is within the realm of possibility that protected areas in 2050 will still cover a substantial part of both terrestrial and marine environments because they have been selected for the benefits they provide to modern societies, including conserving

biological diversity, protecting important watersheds, maintaining critical breeding habitats for productive fisheries, and generating an emotional feeling of respect for these important natural habitats and the species they hold. Many of these protected areas will be located along international boundaries, where these are formed by physical features, with protected areas on both sides of the border providing an effective and peace-promoting boundary that provides benefits to both countries. A decline in the rural population as more people move to cities, especially in the remote and hilly or mountainous areas or wetlands where most of the protected areas are found, will enable protected areas to extend over substantial territory. These large areas would be zones for multiple uses, with intensive tourism confined to the areas that are most suitable for it. Sophisticated wildlife management technologies would enable even rare and endangered species to survive and sometimes increase their populations. Other parts of protected areas would be zoned for wilderness and would be covered by extensive networks of video cameras that allow urban populations to enjoy the wild vicariously. These zones would be useful to researchers and wildlife photographers (using whatever technologies have evolved by then), whose efforts will help build public support for the system.

Such a system of protected areas would be essential to human well-being, enabling people to live in a reasonable balance with the natural resources needed for life, including water, biodiversity, peaceful borders and a sense of being part of a large system of nature (even a sense of the sacred). Such a system would also retain the capacity of ecosystems to adapt to the rapidly changing

conditions that will characterize the world in 2050, including mitigating climate change (recognizing that old-growth forests and productive coral reefs store the most carbon per hectare, an increasingly valuable ecosystem service).

Achieving this system will require broad recognition of the essential functions of protected areas, a well-designed system that enables the various ecosystem services to be delivered and an appropriate system of payments for those ecosystem services. These payments may be part of the public budget, recognizing the high value of the public benefits being provided by these protected areas (e.g., conservation of biological diversity, watershed protection, national security, carbon sequestration, conservation of genetic resources).

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