EDITORIAL: PROTECTED AREAS AS NATURAL SOLUTIONS TO CLIMATE CHANGE

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Over the past decade, climate change has developed from being the minor concern of a few protected area specialists to a headline issue influencing decision making across entire protected area agencies and networks. As an example, at the fifth World Parks Congress at Durban in 2003 there was a single workshop discussing management under climate change (Hansen et al., 2003), while by the time of the sixth Congress in Sydney in late 2014 an entire stream was devoted to the issue, with dozens of presentations and hundreds of people involved. The 'Promise of Sydney' that emerged from the Congress includes a recognition of the need to: 'INVEST… in nature's solutions, supported by public policy, incentives, tools and safeguards that help to halt biodiversity loss, mitigate and respond to climate change' (IUCN, 2014).

Anyone concerned with protected areas is likely to feel pulled in different directions when dealing with the issue of climate change. On the one hand it poses a potentially vast and complex challenge that questions the view of protected areas as static entities, maintained in perpetuity to preserve biodiversity and ecosystem services (e.g., Dunlop & Brown, 2008). A great deal of time and effort has been put into modelling likely impacts in this regard (e.g., Hannah et al., 2007; Kharouba & Kerr, 2010), and to identify the best options for what has become known as 'climate smart' approaches (Stein et al., 2014) to the protection of habitats and ecosystems against the additional pressures from climate change (McLeod et al., 2009; Gross et al., forthcoming). We now see that climate change is not just a concern for alpine or coastal protected areas or iconic

Signature of REDPARQUES Declaration, 13 August 2015, Lima, Perú © SERNANP, Perú

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species; protected areas the world over face the prospect of significant change (IPCC, 2014; Juffe-Bignoli et al., 2014). We must respond by developing climate smart strategies that maintain the diverse values that society holds for protected areas (Hopkins et al. 2015; Dunlop et al. 2013; Stein et al. 2014). But the truth is that we will only know for sure what is happening once it occurs. Protected area managers are learning – or more accurately will have to start learning – to manage for change.

Conversely, it has gradually been recognized that protected areas themselves have an active role in climate change response, in that they contain some of the elements that we need to both mitigate and adapt to rapid climate change (Dudley et al., 2009). Protected areas provide one of the best mechanisms for maintaining natural vegetation, in keeping the soil underneath in good condition, and thus, protecting carbon locked up in vegetation, humus and peat (MacKinnon et al., 2012). A conservative estimate is that 15 per cent of the world's carbon is already maintained within the protected area system (Campbell et al., 2008), which includes state-run protected areas, many indigenous protected areas and also privately protected areas. At the same time, healthy ecosystem services are one of the prerequisites for humanity to adapt to life under a changing and uncertain climate future, for food and water security, disaster risk reduction and for the genetic material needed to help further crop adaptation,

new medicines and other products. In heavily modified areas, protected areas are some of the few remaining, or even the only remaining, natural habitats to supply these needs. Protected areas are also important in building the resilience of biomes that underpin global climate stability and support livelihoods in a climate change context, such as the Amazon.

Individual protected area managers, and in some cases national protected area agencies, are starting to recognize these values. Canada was an early starter, with an economic evaluation of potential carbon sequestration in its national parks system at the turn of the century (Kulshreshtha et al., 2000). In the context of creating a new national park structure to address management of multiple categories of protected areas for public welfare outcomes, the Peoples' Republic of China is considering the carbon sequestration benefits of protected areas (Yi et al., 2014). Institutions such as The World Bank (World Bank, 2009) and Convention on Biological Diversity (Janishevski & Gidda, undated) have started to recognize the potential mitigation benefits of protected areas.

This movement took a decisive step forward in August 2015, when 18 Latin American countries signed the *Declaration on Protected Areas and Climate Change* during the Council meeting of REDPARQUES, the Latin American Technical Cooperation Network on Protected Areas. The declaration highlighted the role of protected areas in climate change mitigation and adaptation and proposed integrating protected areas in climate planning and financing strategies. The call was repeated on a global stage at the 21st Conference of Parties of the UN Framework Convention on Climate Change (UNFCCC) in Paris in December 2015 (where the agreement to strengthen the global response to the threat of climate change was approved by 196 countries and will enter into after ratification by at least 55 countries that account for 55 per cent global emissions).

Key elements of the *Declaration on Protected Areas and Climate Change* are commitments to:

- Promote recognition of national protected areas systems as one the most effective strategies to avoid deforestation and ecosystem degradation and therefore contribute to the stabilization of greenhouse gases concentration in the atmosphere;
- Strengthen protected areas in the actions of the United Nations Framework Convention on Climate Change;
- Include national protected areas systems in the national adaptation strategies, including in the National Adaptation Programs of Action (NAPAs) and National Adaptation Plans (NAPs), and other programmatic documents;
- Promote national recognition of the role of protected areas as mitigation strategies to absorb, store and reduce greenhouse gas emissions, as well as their benefits beyond carbon capture;
- Monitor and report on the contribution of protected areas and other effective conservation measures for climate change adaptation and mitigation;
- Promote participatory management of biodiversity and working with local communities, indigenous peoples and traditional populations.

In Paris, Latin American countries organized a series of events on the role of protected areas as nature-based solutions for mitigating and adapting to climate change; for the first time, protected areas were fully a part of a worldwide debate about addressing climate change. By creating a common platform, the RedParques declaration has also helped to further integrate the protected area agencies of the 18 countries involved and the initiative should also strengthen and influence other protected area agencies around the world.

This initiative leaves WCPA with a clear mandate for moving forward. Two tasks lie ahead. First, the initiative taken by Latin American countries, through their protected area agencies, needs to be spread much further, initially through other national and regional commitments and then simultaneously by working together collaboratively to ensure that the fine words are put into action. There is a long history of cross-border cooperation between protected area agencies, often continuing during periods of international tension or even conflict. Climate change is a global problem that requires local, national and regional collaborative efforts to address impacts that cross sectors, land tenures and national boundaries. The Protected Areas and Climate Change declaration provides an ideal framework for collective action. By highlighting the strong scientific evidence for the role of protected areas in addressing climate change, it should also encourage the protected areas community to work more closely with the UNFCCC in the future.

Secondly, WCPA and its partners need to build up a body of expertise to help protected area agencies, managers and staff to address these lofty goals. A first step in this direction was the creation of a Protected Areas Climate Change Specialist Group following the sixth World Parks Congress in Sydney. While further work is required to

Native trees nurseries are important for conservation of endangered species and for the restoration of degraded areas. Alto Quindío, Central Andes, Colombia © Diego M. Garces / WWF

model local impacts, we must not let the search for ever more precise information hold up action. We know enough about the broad trajectories of climate change to develop adaptation strategies, and should direct our attention towards identifying and then addressing the barriers to adaptation. A growing portfolio of experience gained by practitioners working on the ground can be harvested to document lessons learned and develop clear advice for future work (e.g., Gross et al., forthcoming). Initiatives like the IUCN PANORAMA programme, which is collecting case studies of successful use of protected areas in delivering benefits, can help provide an emerging library of experience. One critical step is for protected area agencies to interact closely with climate change agencies and thus contribute to climate policy-making processes at the national level.

But addressing climate change also involves learning and building capacity about the more subtle and intrinsic aspects of adaptation. It means changing the perceptions and expectations of protected area staff so that they have time to think about climate change alongside the myriad other daily challenges of managing their sites. This is not just a set of practical skills, but also means learning to live with and make decisions in the context of uncertainty and in many cases making trade-offs between a range of different possibilities and management priorities. Protected area management needs to move beyond simply reacting to immediate threats and start comprehending and planning for long-term changes. This will require managers to take steps now in current policy and planning that are targeted at addressing the implications of changes that will take effect long into the future. This involves building capacity to accept and manage within the reality of rapid environmental change, where ecosystems may change and cherished components move away and disappear, to be replaced by incomers, new ecological interactions and perhaps the emergence of novel ecosystems (Hobbs et al., 2009).

In other words, responses must be on many different levels: acceptance at a global level, interaction at national levels between countries, at the level of park management and much more fundamentally within the heads of individuals managing, involved in and even just visiting individual protected areas. There are also different levels of influence and action from governments and civil society that need to complement one another, working with decision-makers to undertake multidisciplinary research that is connected to policy and practice while drawing on the best available scientific, local and traditional knowledge and across sectors – no

good comes from single sector policies; climate, energy, transport, food and health sectors need to have a more homogeneous scientific basis. WCPA has an exceptional role to facilitate *examples of practice* so governments can better lead positions in regional and global fora, and ultimately be able to make legal and institutional changes.

Other knowledge-based systems (i.e. traditional knowledge of indigenous peoples and local communities) are growing in potential to do this as the Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES) is helping governments to build the bridge, but there is still a lot of work to do.

Adaptive management and governance have been discussed in theory, yet we still struggle to implement them in practice (Wyborn, 2015). Now, more than ever, protected area management must draw on the best available knowledge of social and ecological values to support inclusive decision making that anticipates, learns from and responds to change, helping reinforce protected areas systems themselves in an attempt to build larger social-ecological resilience (Berkes & Folke, 1998 Berkes et al., 2003). Protected areas need to be integrated into countries' strategies for a transition to climate resilient and low carbon development, as a stage in the implementation of the Paris agreement. The potential is high, but the risks of failure are also great. This stream of work will be a central facet of WCPA's mission for many years to come.

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