



A DRAFT CODE OF PRACTICE FOR RESEARCH AND MONITORING IN PROTECTED AREAS

Marc Hockings^{1*}, William M Adams², Thomas M. Brooks³, Nigel Dudley⁴, Holly Jonas⁵, Wayne Lotter⁶, Vinod Mathur⁷, Rauno Väisänen⁸ and Stephen Woodley⁹

* m.hockings@uq.edu.au

¹ University of Queensland, Brisbane, Australia

² University of Cambridge, UK

³ IUCN, Science & Knowledge Unit, Gland, Switzerland

⁴ Equilibrium Research, Derwenlas, Wales

⁵ Natural Justice, Sabah, Malaysia

⁶ PAMS Foundation, Arusha, Tanzania

⁷ Wildlife Institute of India, Dehra Dun, India

⁸ Natural Heritage Services, Metsähallitus, Vantaa, Finland

⁹ IUCN World Commission on Protected Areas

ABSTRACT

Protected areas are favoured sites for ecological research and monitoring and responsible, well-managed research can help to improve management effectiveness and enhance conservation outcomes. Many countries have formalized processes for approving and monitoring research within their protected area systems. There are already a number of codes addressing ethical and social issues with respect to research in protected areas, sacred natural sites and in the traditional territories of indigenous peoples and local communities. However, less attention has been paid at a global scale to the ecological impacts of and access to information from ecological research within protected areas. There are numerous examples of research that is of little value to management or is poorly planned, where the results are not shared with the protected area, and even where research causes significant ecological (and / or social) damage. This paper contains a draft code of practice for those carrying out research in protected areas, which we believe should provide a basis for discussions on minimum standards for academic and other researchers in the future.

KEYWORDS: code of practice, ecological research, monitoring, ethical and social issues, protected areas

INTRODUCTION

As ecosystems become increasingly modified, fragmented and converted, ecological research is focused progressively onto those areas that remain in a relatively intact state. Protected areas provide an ideal laboratory for field research: they are managed to maintain wild species and natural ecosystem functioning, provide valuable controls for monitoring longer-term environmental change, and are often the subject of long-term data sets (e.g. the UK Environmental Change Network, www.ecn.ac.uk/); most have sympathetic and knowledgeable staff who can provide assistance and data; they supply ideal conditions for both observation and controlled experiments; and many also contain accommodation and other facilities. Some of the world's most strictly protected areas (e.g., many IUCN category Ia) have been set aside explicitly for research purposes, such as the H J Andrews Experimental Forest in Oregon, which hosts over a hundred research projects every year (Luoma, 1999), and the forest reserves research network

in Europe (Parviainen et al., 2000). Many protected areas across all IUCN categories host important, sometimes permanent, research efforts. In Serengeti National Park in Tanzania for example, the Frankfurt Zoological Society has a research station, both for its own staff and many visiting researchers (e.g., Sinclair and Arcese, 1995) and Cocha Cashu Biological Station, located in Manú National Park in Peru, was established specifically as a research site inside a protected area (cochacashu.sandiegozooglobal.org/). Many academics and other researchers also become involved in monitoring work within protected areas, for instance of population levels of target species, often in association with protected area staff.

Protected areas are also places that require science to inform their management, and nature conservation requires good science. Research is fundamental to the location, design, justification, protection and management of protected area; and the substantiation of



WWF Sumatran Rhino Survey Team in Ujung Kulon National Park, Indonesia © R.Isotti, A.Cambone - Homo Ambiens / WWF-Canon

their effectiveness. Well-designed research projects can therefore provide information that increases management effectiveness and conservation outcomes; provides better understanding for visitors, local communities and stakeholders; addresses actual or potential problems or helps on a broader front through supplying new techniques, information for planning; and creates opportunities to increase funding. For example, in Bwindi Impenetrable National Park, Uganda, researchers from the Institute of Tropical Forest Conservation, which is based at the edge of the park, worked with local people to determine sustainable harvest levels for medicinal plants from designated zones. This helped to provide access to medicines for local people without undermining the ecology of the protected area (Hockings et al., 2008). The Seychelles Islands Foundation, which manages Aldabra Atoll World Heritage site, provides a list of research priorities on its website (www.sif.sc/index.php?langue=eng&rub=30) to help maximise the benefits from scientific research within the protected area (Stolton et al., 2012). Canada's Fundy National Park provided a benchmark site for a whole set of experiments looking at the impacts of

forestry on biodiversity, which were implemented outside the park, leading to a new set of forest management guidelines for the region (Betts and Forbes, 2005).

However, there are potential risks that research activities could have deleterious effects on protected species and ecosystems. To ameliorate these risks, a number of international regulations have been developed and a growing number of protected areas have agreed conditions for research and principles for researchers, who have to apply for permission and abide by a strict set of conditions. Key international milestones include the development of CITES regulations for export of specimens, the 1992 signing of the Convention on Biological Diversity (CBD), which gave countries partial control over their genetic resources and the much stronger controls introduced under the 2010 Nagoya Protocol of the CBD. These have been mirrored by a series of ethical regulations, discussed below. At country level, laws and regulations have also started to control what was once a very *laissez faire* approach to research. In Finland, for example, any research in a state-run

protected area requires a permit, with conditions listed for each individual research project, while the government agency Metsähallitus has framework agreements with research institutes, nominated cooperation groups that meet twice a year to discuss ongoing and proposed projects, and annual meetings of directors to agree priorities and allocation of resources. Parks Canada has an online Research and Collection Permitting System that streamlines and harmonises research in Canadian protected areas (www.pc.gc.ca/apps/rps/page1_e.asp). The Great Barrier Reef Marine Park Authority in Australia maintains a research needs document to guide researchers on research topics of particular management relevance (elibrary.gbrmpa.gov.au/jspui/handle/11017/968) and maintains an active dialogue with major research institutions who conduct extensive research in the Great Barrier Reef. In Tanzania, the wildlife research institution TAWIRI, has a comprehensive set of research conditions applying to wildlife research in the country with specific provisions applying to work in protected areas (TAWIRI, 2012). And in Nepal research guidelines have been developed by the Department of National Parks and Wildlife Conservation (DNPWC, 2012) with the objectives of facilitating and regulating the research permission process, helping protected areas utilize the findings and build the capacity of the protected staff and local people through research.

These kinds of mechanisms are however absent in many countries. Protected area managers complain that researchers cause damage, are reluctant to share data or credit, and often do not even supply copies of any reports and papers that result from their work. Furthermore, in some areas research tends to be highly specialised, with little if any practical management application even when practical research is critically needed. Governments, particularly in developing countries, complain that researchers from rich corporations also use protected areas as sources of information, genetic material and ideas, but give nothing back in return. On the other hand researchers complain that park managers will not share existing data, are overly bureaucratic, and put up unnecessary obstacles to doing research in protected areas.

Whilst many reports of problems remain anecdotal, the limited research available supports the idea that things could be improved. A questionnaire to 155 natural World Heritage sites, distributed as part of the still ongoing second round of Periodic Reporting on status of World Heritage, revealed that 12 sites (~8 per cent) reported that research and monitoring activities are currently a “threat” in the park and 21 (~13 per cent) reported them

as a potential threat (some sites reported both as current and potential so that the figures cannot be summed). Furthermore, 63 sites (40 per cent) reported that “There is considerable research but it is not directed towards management needs and/or improving understanding of Outstanding Universal Value” (all figures calculated from World Heritage periodic reporting data).

A survey of information transfer between scientists and protected area managers in Australia suggests that even where scientists are consciously attempting to provide relevant research there can still be large gaps in understanding. Both managers and scientists believed communication between the two groups to be good, overwhelmingly as a result of personal and frequently informal contact (Boughton et al., 2008). But agreement on the relevance of the research differed dramatically. Most managers believed that the majority of research carried out by scientists was not relevant to their work (even when the scientists were employed by the protected area agency). Conversely most scientists believed that their research was highly relevant, but not used: for example 42 per cent of researchers judged that 80–100 per cent of their research was applicable to management but only 2 per cent believed that the majority of it was actually applied. Despite good working relationships, there was still a major gap in understanding (Boughton et al., 2008).

The increasing recognition of the pervasive threats to biodiversity posed by novel invasive species and pathogens imposes a number of additional challenges for good practice research in protected areas. In some cases, as in the Antarctic, scientific researchers have been prime vectors for introduction of invasive species (Hulme et al., 2012). An example of the need for controls is the amphibian fungal disease chytridiomycosis, a major driver of amphibian declines. Guidelines are slowly emerging to reduce risk that research might actually accelerate the transmission and/or virulence of the disease. For instance, the Australian Department of the Environment and Heritage (2006: 57–59) *Threat Abatement Plan* includes clear recommendations for field research (3.23–3.43). Similarly, biosecurity measures are in place for any research personnel visiting the Kakapo islands in New Zealand. Incorporation of such guidelines into best practice elsewhere in the world, and their extension to include risk mitigation for other diseases and invasive species, is an important priority.

The challenges are recognised and a number of individuals and organisations have raised the question internationally, including the Science and Management of Protected Areas Association, the George Wright



Park ranger taking part in research related to the Yellow-spotted river turtle (*Podocnemis unifilis*) in the Manu River area of Peru © André Bärtschi / WWF-Canon

Society and the World Commission on Protected Areas. A guide to *Coordinating Research and Management to Enhance Protected Areas* was published at the IVth World Congress on National Parks and Protected Areas in Caracas, Venezuela (Harmon, 1994). Scientific journals such as *Oryx* include ethical and environmental principles that published research papers should meet and a code for researchers was included in a UNESCO manual on managing natural World Heritage sites (Stolton et al., 2012). Some of these issues are also being addressed through international agreements and conventions, particularly the Convention on Biological Diversity and its Nagoya Protocol on Access to Genetic Resources and Equitable Sharing of Benefits arising from their Utilization (ABS) (SCBD, 2010), although controls remain controversial and poorly enforced. However, these international efforts focus principally on issues of access to genetic material and equitable sharing of any benefits thus derived; they say little about less economically important and politically sensitive areas of ecological research.

The ethical and practical issues increase in number and complexity in other protected area governance types and management categories, particularly in indigenous peoples' and community conserved territories and areas (ICCAs - www.iccaconsortium.org/) and areas of shared governance, co-management, and multiple use arrangements. Indeed, in reality social and political contests over land-use, governance and ownership face a substantial number of government or privately-owned protected areas, wherein responsible researchers need to take account of intricate social issues. It is not our aim here to provide a detailed guide to these situations.

Indeed, this is not necessary, because a number of existing standards, codes of practice and guidelines exist; our researchers' code should be applied alongside these wherever the former apply. Of particular importance are three from the Convention on Biological Diversity – the *Akwe Kon* guidelines for the conduct of cultural, environmental and social impact assessments in or near sacred sites (CBD, 2004) the *Tkarihwaï:ri Code of Ethical Conduct to Ensure Respect for the Cultural and Intellectual Heritage of Indigenous and Local Communities* (CBD, 2010), and the *Nagoya Protocol on Access to Genetic Resources and Fair and Equitable Sharing of Benefits Arising from their Utilization* (CBD, 2010) – and the International Society for Ethnobiology's *Code of Ethics* for researchers (ISE, 2006). Following the CBD standards is an obligation to all 193 State Parties. Other regional codes are also important and useful, for example guidelines produced for carrying out social research with communities adjacent to Kruger National Park (Tapela et al., 2009). As part of requirements for obtaining ethical clearance for research, the requirements relating to social issues in research should be fully identified and addressed.

The following code of practice is therefore suggested as a framework for building improved cooperation between, on the one hand, protected area agencies and other key actors and rights-holders such as Indigenous peoples and local communities and, on the other hand, researchers. It has drawn existing literature and on the experiences of people from a wide variety of backgrounds connected with protected areas. It is necessarily preliminary and we welcome further ideas and input.

A DRAFT CODE OF PRACTICE FOR RESEARCH AND MONITORING IN AND AROUND PROTECTED AREAS

Responsible research and monitoring in the protected area

1. All research must have the necessary national to local approvals and permits, pay any fees required, and strictly follow laws, regulations and social norms and protocols relating to research within protected areas, including with respect Access and Benefit Sharing (ABS) under the Convention on Biological Diversity.
2. All research should obtain necessary ethics approval from research organisations, funding agencies, and protected areas with respect to both animal research and social research.
3. Field researchers must adopt the highest precautionary standards to avoid the accidental introduction and distribution of invasive and pathogenic organisms (e.g., Wittenberg and Cock, 2001).
4. Field research should minimise disturbance both to the organisms being studied and to other species and ecosystems
5. Data collection involving the killing of an organism should only take place when this is absolutely essential to the research and has been agreed by managers and follows national rules.
6. Research involving significant alteration to ecosystems including through killing of organisms should normally not be undertaken in IUCN category I-IV protected areas unless there is no feasible alternative research location, or unless research is likely to be of significant importance to the conservation goals of the protected area. In all such cases, a detailed impact assessment and cost-benefit analysis should be undertaken before permission is granted, and research should focus on less strictly protected zones of the protected area. Particular attention should be given to whether the areas or species are considered sacred or culturally important to indigenous peoples or local communities and to the degree of threat faced by the species (drawing on Red List categories).
7. Where research involves fieldwork in areas occupied by people, or affects species or ecosystems to which people have de facto or de jure tenure rights or cultural connections, it must have free prior and informed consent (FPIC) from right-holders in relation to the rights that may be affected and be carried out in a way that respects local beliefs, economic and cultural interests, and rights.
8. Managers of protected areas should seek to partner with research organisations to develop collaborative research that will both inform management and meet the needs of the research community for cutting-edge science. In turn, researchers should seek collaborative relationships with managers where the results of their research are likely to inform park or conservation management and build capacity.
9. Researchers should consider the aesthetic values of protected areas and impact on visitor experience when selecting methods of data collection, radio collaring, constructing research plots, field bases, etc, and remove all equipment and other materials at the end of the research.
10. Researchers employed by protected area organizations or associated government departments should abide by the same rules and code of conduct, where applicable, as external researchers.
11. Protected area managers should welcome research as an important value of protected areas. They should create clear conditions for permitting research and seek to encourage suitable research in protected areas ideally through a process (e.g. a research working group) which identifies research priorities.

Participation of relevant stakeholders

12. Projects should wherever possible be developed collaboratively with representatives from protected area agencies, managers and staff, and where appropriate, should also involve the participation of local partners and stakeholders, including as co-researchers involved in both project design and decision-making processes
13. Research (data, analysis and recommendations) should, wherever possible, seek to increase local and national capacity to understand and manage the protected area, improve environmental education and knowledge and supply material used by local interpretive guides.
14. Local partners should be rewarded appropriately for their contributions, for example through recognition in publications and presentations.
15. Where appropriate, the approvals process should include opportunity for concerned stakeholders, such as local communities, to comment on applications where the research will significantly impinge on their interests, such as when it would take place on their traditional land or near sacred natural sites.
16. Use of traditional ecological knowledge should be appropriately recognised, with free, prior and informed consent for any information used. If the research process or intended uses change, the rights-holders must be re-engaged as part of a continual process of free, prior and informed consent,

particularly if traditional knowledge or associated genetic resources could be placed in the public domain.

17. Research involving people and their beliefs, attitudes and behaviours should respect the privacy of an individual's information and responses, where possible following the privacy rules established for the country. Where privacy rules are absent, researchers should report aggregate data or data that cannot be tracked to individuals rather than suppress data altogether. All personal data should be stored and kept in a confidential manner.

Contribution to effective protected area management

18. Professional and amateur researchers should be encouraged to undertake responsible studies within protected areas as a positive contribution to knowledge and management effectiveness (e.g., by tracking trends in species numbers)
19. Researchers should consider management priorities and information gap and work towards providing data and recommendations that as far as possible will help to improve protected area management.
20. Research methodologies should be developed with the appropriate protected area managers and rangers, particularly where they have direct management application.
21. Field researchers should supply any useful incidental information collected (on species movement,

management problems, illegal activities that may need immediate action by protected area staff and protection force, etc) to protected area staff through regular constructive briefings (briefing papers, progress reports and verbal reports) rather than wait till they research is completed, whilst respecting confidentiality of information collected through anonymous interviews and questionnaires.

22. Researchers should be mindful of the need to avoid general sharing of photographic or other information (e.g. through websites, social media or group emails) which could damage the protected area (e.g. be used by poachers and illegal wildlife traders).

Intellectual property rights, access to information and sharing of results

23. Intellectual property rights on data and results must be recognised and research should not infringe local rights in intellectual property (e.g. customary laws and community protocols and procedures of the indigenous peoples and local communities concerned); if research is carried out in a host country that has few legal requirements, researchers should follow the standards of their country of origin, relevant international standards
24. Where protected area staff, field assistants and others have contributed significantly to the research, through data collection and analysis, they should be offered co-authorship of resulting papers, or for lesser inputs included appropriately in acknowledgements.

BOX: PARKS VICTORIA RESEARCH PARTNERS PROGRAM, AUSTRALIA

The major delivery mechanism of Parks Victoria's applied research program is the Research Partners Program (RPP). The RPP commenced in 2000 with the aim of creating a strategic and cost efficient way to fill critical knowledge gaps for the management of the parks system. Prior to the creation of the RPP, research in parks was often localised, ad hoc and of limited value in answering the most strategic and important park management questions.

With limited in-house science capacity, the RPP provides the major vehicle for Parks Victoria to access a diverse range of scientific knowledge, expertise and research skills needed to enable informed management decision-making. By bringing together the scientific knowledge and skills of Research Partners with the practical management skills of Parks Victoria staff it seeks to address real-life applied management questions to directly benefit and improve on-ground management.

The objectives of the RPP are to:

- Improve understanding of the values of, and threats to, the park system and the benefits of parks to the community
- Encourage collaboration in scientific research and enable scientists and park managers to work together to enhance the conservation and management of parks
- Build a strong body of knowledge to inform adaptive park management.

Through the RPP, Parks Victoria has established formal partnership agreements with ten universities and other research institutions to undertake collaborative research to improve park management. The RPP also enables opportunistic (project-based) agreements to be developed with other research institutions.



The Monitoring and Research Co-ordinator for WWF's RUMAKI Seascape Programme surveying the Kitutia reef in the south of Mafia Island Marine Park in Tanzania © Brent Stirton / Getty Images / WWF-UK

25. A copy of all research should be provided to the protected area management authority. Copies of reports and publications resulting from the research should, wherever possible, be freely available electronically as far as possible and provided to all relevant local and national organisations in the country where the research is undertaken (e.g., local libraries or resource centres and protected area management office) in an appropriate form (paper or electronic according to local storage and search capacity); and language (including when appropriate local languages for any Indigenous peoples or local communities involved).
26. Samples collected should, where appropriate and agreed in the research design, eventually be deposited in public collections such as museums or botanical gardens and/or returned to Indigenous peoples or local communities from whom they were collected; ensuring that local rules and CITES export rules are followed.
27. As a general principle raw data should be supplied to the protected area along with relevant explanatory documentation (where necessary with a time lag to allow results to be published).
28. Researchers should publish results in a reasonable time period and not use publication delay to withhold data from protected areas managers.
29. Any practical implications for protected area management that have been highlighted by the research should be reported to the protected area managers within a reasonable time period and where face to face meetings will be necessary to relay findings, the costs to travel back to a protected area to present results is included as part of the research budget.
30. Where research is ongoing over a number of years, researchers and protected area staff should meet regularly (e.g. quarterly) to report back on progress, discuss results and identify research priorities



Polar Bear research in Wapusk National Park, Manitoba, Canada © Kean MOYNIHAN / WWF-Canada

CONCLUSIONS: PARTNERSHIPS BETWEEN MANAGERS AND RESEARCHERS

Partnerships are important at both the individual manager-researcher level and between management and research institutions. Capacity building may be needed at both levels: e.g. an increased understanding of how protected areas are designated and managed by researchers / research institutions and on how research is developed, carried out, reported and used by protected area managers and management agencies. Individual relationships tend to develop and evolve over time but institutional mechanisms can help develop capacity, create collaborative arrangements and provide a means to bring managers and researchers into more regular and focussed discussion. Through such mechanisms, park managers can develop, in discussion with researchers, outlines of key research themes and needs that can help guide potential researchers to relevant topics that have a ready application to park management. This can be particularly useful to research students and early career researchers.

Where an on-going collaboration exists between a research institution and a protected area management agency, there may be an opportunity for the Agency to grant an institutional or umbrella permit, under specific conditions, to help facilitate research that meets the conditions of the permit and thereby save administrative overheads for both the researchers and the managers.

The current code of practice is presented as a draft. The authors welcome feedback and intend to publish a more definitive version at the World Parks Congress in Sydney, Australia, in 2014.

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ABOUT THE AUTHORS

Marc Hockings is Professor and Program Director (Environmental Management) at the School of Geography, Planning and Environmental Management at The University of Queensland in Australia. He is also the IUCN WCPA Vice-Chair for Science and is a Senior Fellow of UNEP-World Conservation Monitoring Centre.

William M Adams is the Moran Professor of Conservation and Development at the Department of Geography, University of Cambridge in the UK. He has been teaching about conservation and sustainable development since 1984. His research explores the tensions between conservation and development,

particularly in Africa and the UK. Bill is currently working on landscape-scale conservation and ecological restoration, and the implications of novel ecosystems for conservation practice. He blogs at: thinkinglikeahuman.wordpress.com/

Tom Brooks heads Science and Knowledge at IUCN headquarters in Switzerland. Before joining IUCN Tom was Vice President for Science and Chief Scientist at NatureServe and has previously held biodiversity science positions in The Nature Conservancy and in Conservation International. His field experience is primarily from tropical forest hotspots: in Kenya, Paraguay, and Indonesia and the Philippines. Tom is an ornithologist by training and has a Ph.D. in Ecology and Evolutionary Biology from the University of Tennessee (1998).

Nigel Dudley is a partner in Equilibrium Research; he specialises in protected area policy and management. He has a joint honours degree in zoology and botany from the University College of Wales, Aberystwyth and is based in Wales and Bristol, UK. Nigel has carried out research and fieldwork in over 70 countries throughout the world and Equilibrium Research has produced 100's of publications. His interest in the way that research is carried out in protected areas has been sparked by seeing numerous examples, good and bad, over the past twenty years.

Holly Jonas has a background in zoology and anthropology and has worked with communities and NGOs on local development and natural resource management in the USA, Tajikistan, and South Africa. She joined Natural Justice in 2009 and is based in Sabah, Malaysia, to focus on the Asia Regional Initiative on Biocultural Community Protocols and participatory approaches to legal empowerment and community governance of territories and ecosystems.

Wayne Lotter is a founding member and chairman of the PAMS Foundation. He has a Masters Degree in Nature Conservation and he has 20 years of professional experience in wildlife management, conservation and environmental management, and community liaison and has worked in government, corporate and NGO sectors. Previous employment includes International Team Leader for the Selous-Niassa Wildlife Protection Corridor Project (KfW) in southern Tanzania and Invasive Alien Species Programme Co-ordinator for Ezemvelo KwaZulu-Natal Wildlife in South Africa. He is currently the Vice President of the International Ranger Federation and was past Chairman of the Game Rangers Association.

Vinod Mathur is the Dean of the Faculty of Wildlife Sciences at Wildlife Institute of India. He obtained his doctorate degree in wildlife ecology from the University of Oxford, UK in 1991. He is IUCN WCPA Vice-Chair for South Asia; Deputy Coordinator, IUFRO (Wildlife Conservation and Management) and member of the International Association of Impact Assessment (IAIA). He is currently serving as member of Ministry of Environment & Forests (MoEF), Government of India Committees on World Heritage Conservation, Biosphere Reserves, Management Effectiveness Evaluation and Environment Appraisal of Coal and Thermal Projects.

Rauno Väisänen has been Director of Natural Heritage Services at Metsähallitus since 1995. He is in charge of the management of the core of the protected areas system in Finland including 37 national parks, 19 strict nature reserves and about 500 other nature reserves. He has a PhD in zoology from the University of Helsinki (1984). He has published more than hundred refereed scientific papers in biosystematics, ecology, forest zoology, entomology, ecotoxicology and conservation biology. Before joining the NHS, he worked for the environmental administration and at the University of Helsinki.

Stephen Woodley is an ecologist and former Chief Scientist at Parks Canada. He is currently on secondment to the IUCN Global Programme on Protected Areas, addressing issues of science with a special emphasis on biodiversity and climate change.

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RESUMEN

Las áreas protegidas son sitios apetecidos para la investigación ecológica y el monitoreo, y la investigación responsable puede ayudar a mejorar la eficacia de la gestión y a intensificar los resultados de la conservación. Muchos países han formalizado procesos de aprobación y monitoreo para la investigación dentro de sus sistemas de áreas protegidas. Ya existe una serie de códigos para abordar las cuestiones éticas y sociales relacionadas con la investigación en las áreas protegidas, los sitios naturales sagrados y los territorios tradicionales de los pueblos indígenas y las comunidades locales. Sin embargo, menos atención se ha prestado a escala global a los impactos ecológicos de la información derivada de la investigación ecológica en las áreas protegidas. Hay numerosos ejemplos sobre investigaciones que son de poco valor para la gestión o que están mal planificadas, donde los resultados no son compartidos con el área protegida, o incluso donde las investigaciones provocan daños ecológicos (o sociales) importantes. Este documento contiene un proyecto de código de prácticas para quienes realizan investigaciones en áreas protegidas, que podría servir de base para debates sobre normas mínimas para académicos y otros investigadores en el futuro.

RÉSUMÉ

Les aires protégées sont des sites privilégiés pour la recherche et le suivi écologique. Une recherche responsable et bien gérée peut permettre d'améliorer l'efficacité de la gestion et les résultats de la conservation. De nombreux pays ont officialisé des processus permettant d'approuver et de suivre la recherche au sein de leurs systèmes d'aires protégées. Il existe déjà plusieurs codes abordant les questions éthiques et sociales relatives à la recherche dans les aires protégées, les sites naturels sacrés et les territoires traditionnels des populations autochtones et des communautés locales. Cependant, à l'échelle mondiale, les impacts écologiques et l'accès à l'information issue de la recherche écologique au sein des aires protégées suscitent peu d'intérêt. Un grand nombre d'études s'avèrent peu utiles pour la gestion, mal planifiées, ou bien leurs résultats ne sont pas partagés avec l'aire protégée. Parfois même, la recherche peut causer des dommages écologiques (et/ou sociaux) significatifs. Cet article contient un code de bonnes pratiques provisoire pour les chercheurs réalisant leurs travaux dans les aires protégées. Nous pensons que ce code devrait, à l'avenir, servir de base pour les futurs débats portant sur les normes minimum applicables aux chercheurs universitaires ou autres.