***Review***

# People, Parks and Poverty: Political Ecology and Biodiversity Conservation

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**Abstract:** *Action to conserve biodiversity, particularly through the creation of protected areas (PAs), is inherently political. Political ecology is a field of study that embraces the interactions between the way nature is understood and the politics and impacts of environmental action. This paper explores the political ecology of conservation, particularly the establishment of PAs. It discusses the implications of the idea of pristine nature, the social impacts of and the politics of PA establishment and the way the benefits and costs of PAs are allocated. It considers three key political issues in contemporary international conservation policy: the rights of indigenous people, the relationship between biodiversity conservation and the reduction of poverty, and the arguments of those advocating a return to conventional PAs that exclude people.*

**Keywords:** political ecology, conservation, biodiversity, population displacement, resettlement, parks, protected areas, poverty and conservation, wilderness

## INTRODUCTION

IN 2004, 500 PEOPLE were removed from the Nechasar National Park in southern Ethiopia, and resettled outside its borders (Pearce 2005). This forced displacement was undertaken by the government of Ethiopia, in order to clear the park of encumbrances before handing it over to a private Dutch-based organisation awarded a contract to manage it, the African Parks Foundation (APF).[1]

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This, and related displacements in Omo National Park, were swiftly condemned by international human rights NGOs.[2] Two years later, on 13 December 2006, the Botswana High Court ruled that the Botswana government's eviction of Bushmen from the Central Kalahari Game Reserve was 'unlawful and unconstitutional', and that they had the right to live on their ancestral land inside the designated area.[3]

These cases illustrate the contemporary importance of debates about the place of people on land set aside for the conservation of nature.[4] These have received increasing attention from academic researchers and human rights activists (e.g. Fairhead and Leach 2000; Colchester 2002; Chapin 2004; Dowie 2005). The stated aim of the APF, which also runs parks in Zambia, Malawi and South Africa, is 'to restore, manage and maintain the natural resources of the parks to ensure long-term ecological and financial sustainability'.[5] This framing of protected areas (PAs) in ecological and financial terms excludes any consideration of the social and political context of the establishment and management of PAs, despite the obvious importance of such issues. For whom are such areas set aside? On whose authority? At whose cost?

These issues are central to the growing public and policy debate about the social impacts of conservation. That debate, however, is much broader than just the question of the displacement of people from parks. It embraces the whole relation between biodiversity conservation and human welfare, especially the compatibility of conservation and poverty alleviation and the feasibility of 'win-win' policy strategies (Adams et al. 2004; Agrawal and Redford 2006).

There is growing policy literature about conservation and poverty in general, and the specific issue of the social impacts of PAs. This draws to only a limited extent on an explicit understanding of the political and economic dimensions of conservation policy. One important reason for this is the disciplinary gulf that exists between predominantly natural science-trained conservation planners and predominantly social science-trained critics of conservation. This gulf is profound and long standing, but the need and opportunity for creative approaches to bridge it are being addressed from both sides (e.g. Brosius 1999a, 2006b; Mascia et al. 2003; Thornhill 2003; Campbell 2005).[6] One particular feature of this divide is the different capacity of natural and social scientists to engage with the politics of conservation action as a subject for analysis. Social science integrates politics centrally within its analysis of conservation; natural science typically places it outside, as a constraint on practical action. The field of political ecology offers productive possibilities for developing understanding of political dimensions of conservation (Stott and Sullivan 2000; Zimmerer and Basset 2003; Peet and Watts 2004; Robbins 2004).

Political ecology is a diverse and transdisciplinary field. It emerged in the 1970s, and developed in the 1980s, particularly as an explanatory framework for the problem of soil erosion (Blaikie 1985; Blaikie and Brookfield 1987). Political ecologists analyse environmental or ecological conditions as the product of political and social processes, related at a number of nested scales from the local to the global (Bryant and Bailey 1997). Thus political ecology attempts to link an understanding of the logics, dynamics and patterns of economic change the politics of environmental action and ecological outcomes (Peet and Watts 2004), a set of relationships fundamental to conservation. Political ecologists typically engage in field-based empirical research (often case-study research), a localised or regional approach with roots in geography, anthropology, sociology and environmental history (Zimmerer and Young 1998). Many of the insights of political ecology are shared with environmental anthropology (e.g. Brosius 1999a, b; 2006b).

The field of political ecology explicitly addresses the relations between the social and the natural, arguing that social and environmental conditions are deeply and inextricably linked. Moreover, it emphasises not only that the actual state of nature needs to be understood materially as the outcome of political processes, but also that the way nature itself is understood is also political. Ideas about nature, even those that result from formal scientific experimentation, are formed, shared and applied in ways that are inherently political (Escobar 1999). There is particular interest in the place of the apparatus of the state in directing, legitimising and exercising power and control (Forsyth 2003; Peet and Watts 2004; Robbins 2004).

There is a growing literature explicitly drawing on a political ecological analysis to explore conservation. Key issues include the politics and economy of the spatial strategy of PA declaration in colonial and post-colonial contexts (e.g. Schroeder 1999; Neumann 1992; 2004c; Brockington 2002), the role of the state as the central agent in the direction, legitimisation and exercise of power and control in the name of conservation (Peluso 1993; Neumann 2004b) and the role of non-governmental conservation actors (Bryant 2002; Brosius 1999b; Hecht et al. 2006). This paper engages with this literature, examining the way conservation policies on the ground reflect wider and more general ideas about nature, particularly through the development and application of scientific knowledge (e.g. Fairhead and Leach 2003; Stott and Sullivan 2000) and the problematic relationship between PAs and human communities. It should be noted that other important dimensions of the political economy of conservation, such as the politics of global environmental change, are not discussed here. Anthropogenic climate change is increasingly recognised as a significant global threat to biodiversity, and an analysis of political responses and outcomes in specific environments and social contexts has considerable promise, but lies beyond this paper. The focus here is on conservation policy and its implications, especially through the establishment of PAs.

## PEOPLE AND PROTECTED AREAS

PAs[7] have been the mainstay of international conservation strategies since the start of the twentieth century (Adams 2004), although their history is much older. The place of people in PAs, particularly residents using local resources, has varied, but it has long been problematic. The first national parks were established in the USA in the late nineteenth century, and widely copied internationally in subsequent decades. The number of PAs expanded rapidly following World War II, especially in regions such as Africa, which underwent a 'conservation boom' at this time (Neumann 2002). In 1958, IUCN established a Provisional Committee on National Parks, which developed into today's World Commission on PAs (Holdgate 1999).[8] After 4 years, in 1962, the United Nations General Assembly adopted a 'World List of National Parks and Equivalent Reserves'.[9] Creation of this list demanded standardisation of the various models of PA then being developed in Europe, the USA and the developing world, and IUCN duly developed a classification that defined different kinds of PAs. This has been repeatedly refined over the years (Ravenel and Redford 2005), and currently consists of six different categories, including both highly exclusionary Category 1 and 2 PAs (including classic National Parks) and a variety of other kinds of PAs that are more inclusive of human activities, such as protected landscapes and reserves intended to maintain flows of products and services for human society.[10]

The area protected globally more or less doubled over the 1970s as the national park model spread to late adopters such as Latin American countries (Harrison et al. 1982). The area in PAs continued to grow, doubling again between the fourth international parks congress in Caracas in 1993 and the fifth in Durban in 2004 (Terborgh 2004). By 2005, over 100,000 PAs covered more than 2 million $km^2$, or 12 per cent of the earth's land surface (Chape et al. 2005). Systems of PAs existed in every country, wealthy and poor alike (Naughton-Treves et al. 2005).

The social impact of PAs began to be widely recognised in the 1970s. The idea that parks should be socially and economically inclusive slowly began to become part of mainstream conservation thinking (e.g. Western et al. 1994; Ghimire and Pimbert 1997; Hulme and Murphree 2001; Adams 2004). UNESCO's 'biosphere reserve' concept, developed in the 1970s, was based on zoning, with a strictly protected core and a surrounding buffer zone where only appropriate economic activity could take place. The specific issue of the displacement of people from PAs was recognised by the 1970s. In 1975, the IUCN General Assembly passed the Kinshasa Resolution on the Protection of Traditional Ways of Life, calling on governments not to displace people from PAs, and to take specific account of the needs of indigenous populations (Colchester 2004). In 1984, the World Bank published guidelines that ruled out resettlement of indigenous people (World Bank 1984). In 1975, the UNESCO World Heritage Convention made specific provision for the conservation of areas of historical and cultural significance, admitting to the UN system PAs whose special qualities were created by human action.

By the 1980s, the whole conservation paradigm had changed to feature social inclusion rather than exclusion (Adams and Hulme 2001a; Hulme and

Murphree 1999). On paper at least, the needs of local people were firmly on the conservation planning agenda. Community-based approaches dominated debate about conservation strategies in the rural developing world in the last two decades of the twentieth century (see for example Wells and Brandon 1992; Brosius et al. 1998; 2005, Adams and Hulme 2001a; 2001b; Hulme and Murphree 1999; 2001; Ghimire and Pimbert 1996; Western et al. 1994; Wilshusen et al. 2002). 'People and park' projects were developed in many countries, although many involved simply a repackaging of existing approaches.

The World Conservation Strategy (IUCN 1980) marked a change in the approach taken by conservation planners to development, from damage limitation (e.g. Dasmann et al. 1973) to a focus on sustainability (Adams 2001). The World Conservation Strategy argued that sustainable development depended on the conservation and sustainable use of living organisms and ecosystems. This idea became an important element of mainstream sustainable development thinking (Adams 2001), and the basis for a substantial flow of funds into conservation work in the 1990s, for example through the Global Environment Facility and the work of bilateral donors such as USAID.

Such funding was the primary fuel for the experiments that were made with 'community' approaches to conservation, including Integrated Conservation and Development Projects (ICDPs) and community-based natural resource management (CBNRM). Advocates of 'sustainable use', or 'incentive-based conservation', propose that conservation can best be achieved by giving rural people a direct economic interest in the survival of species, thus literally harnessing conservation success to the issue of secure livelihoods (Hutton and Leader-Williams 2003). Sustainable use strategies based on hunting, for example safari hunting in southern Africa, show some success, although they are opposed by the animal rights movement and its supporters in Northern conservation NGOs (Duffy 2000). There is a better fit between the sustainable use approach to non-consumptive uses of wildlife (e.g. ecotourism) and the ethical and ecological predispositions of conservationists.

The issue of people in and around PAs was central to discussion at the Third World Congress on National Parks in Bali in 1982 (McNeely and Miller 1984), as were the rights and needs of indigenous people at its successor in Caracas in 1992 (McNeely 1993). The 'Durban Accord', agreed at the Fifth World Parks Congress in 2003, defined a new paradigm for PAs, which would integrate them with the interests of 'all affected people' such that they provide benefits 'beyond their boundaries on a map, beyond the boundaries of nation states, across societies, genders and generations' (World Conservation Union 2005: 220). Such language reflects very real struggles to define what PAs are and what social (and indeed biological) purposes they might serve.

The relationship between people and nature, particularly in the context of PAs, is highly political, embracing issues of rights and access to land and resources, the role of the state (and increasingly non-state actors in NGOs and the private sector), and the power of scientific and other understandings of nature.

This paper reviews this emerging political ecology of conservation. It looks first at the significance of ideas about nature for the way conservation has been thought about and practiced. It discusses the importance of Enlightenment divisions between 'natural' and 'human', and the complex implications of the idea of nature as pristine, something conceptually separate and physically set apart from the human, for example as 'wilderness'. Second, it reviews the social impacts of PAs, particularly on people displaced. It discusses the nature, extent and significance of population displacement for conservation, and the issue of coercion. Third, it considers the political economy of conservation benefits, which (like costs) tend to be unequally shared. Some are widely spread (e.g. ecosystem services), while others are more restricted (e.g. tourism revenues). Not all benefits are acquired legally. Fourth, the paper considers the growing debate about the rights and needs of indigenous people in the context of state designation of PAs. In many ways the issues this raises are similar to general debates about people and parks, although ethnicity, identity and indigenousness provide a more urgent political context as well as extra complexities. Fifth, the paper reviews attempts to connect (or disconnect) the issues of poverty and conservation. The political ecology of conservation is increasingly being framed in the context of the contrast between global wealth and local poverty. Sixth, the paper considers the significance of the renewal of calls for strictly protected parks that exclude resident people. An important element here is the role of natural science in the thinking of conservationists, and a corresponding lack of familiarity with political, social and economic issues.

## CONSERVATION AND THE IDEA OF NATURE

Political ecologists argue that the way nature is understood has profound political significance (Peet and Watts 2004; Neumann 2004c). This is certainly true of conservation, where, especially in creating PAs, the state or other actors seek to make rules about who can use nature and where, when and how they can do so. The establishment of PAs that exclude people reflects a conceptual division between nature and human society that has deep roots in Western thought. The displacement of people in this way needs to be understood in the context of wider modern engagement with nature (Neumann 2004a). Indeed, conservation has to be understood in the historical context of the wider political structure of colonial societies, and the extension of capitalism to the global periphery.

The efficient mastery of nature has been a central principle of the 'formal rationalisation' associated with the modern state (Murphy 1994). Rationalisation is recognised as the dynamic and self-driving process that underpins capitalism and bureaucracy; it involves treating non-human nature as if it were fully plastic, malleable to meet human demands (Murphy 1994). This approach to nature underpinned the development of science and the ambition of

European imperialism from the sixteenth century onwards, a process of tightening 'government' of nature (Drayton 2000). Indeed modern state governance was built on the idea that nature could be understood, manipulated and controlled for social benefit through the development of schematic (increasingly scientific) knowledge (Scott 1998).

Thus, for example, a new science of forestry was developed in eighteenth-century Prussia. Through this lens, the complex interactions of trees, wildlife and people of former woodlands were re-expressed in narrow and simplified scientific terms that allowed the calculation and measurement of productivity and efficient physical management. Scientific forestry was adopted in the nineteenth century, in France, in British colonial possessions (notably India, where imperialism, science and environmentalism became inextricably interlinked, Barton 2002), and in the USA (Demerrit 2001). The abstraction of the complex ecosystem of the forest in terms of statistical units allowed nature to be represented in terms such as 'maximum sustainable yield' or 'annual allowable cut'. In the twentieth century, such thinking became the standard global approach to 'renewable resources' such as forests.

Historically, therefore, science allowed nature to be classified, counted, and (at least in theory) to be controlled by government bureaucracies set up to optimise relations between state, society and nature (Hays 1959; Willems-Braun 1997; Demerrit 2001; Mackenzie 2000). The same reductionist approach was applied to the people in colonial territories (Mackenzie 2000). In forestry, and in conservation, the dynamics of power and knowledge interacted in the regulation of people and nature through what social theorists call 'governmentality' and 'biopolitics' (Foucault 1975; McNay 1996; Bryant 2002).

The conceptual divisions between natural and human (e.g. between empty and inhabited land, or wild and sown) were made physical on the landscape by cartography, in both the USA and the British Empire (Adams 2003). Thus the US government separated settlers, native peoples and nature both conceptually and in space (Jacoby 2001), while the government of colonial Tanganyika created 'a new spatial order of nature and human occupation' in Liwale District (Neumann 2001: 662). This conceptual distinction led to the imposition by the state of physical separation between people and nature, and often to a denial of rights and of historic human presence.

The most influential model for conservation in twentieth century was the US national park, developed in the late nineteenth century, and epitomised by Yellowstone and Yosemite (Runte 1987; 1990). This was founded on a conception of nature as something pristine that could be distinguished and physically separated from human-transformed lands. The speed and scale of human-induced ecological change in tropical environments, especially on islands, was an important factor in the development of modern western environmentalism from the seventeenth century (Grove 1992; 1995), and remained important in the nineteenth century where the twentieth-century conservation movement had its roots (Marsh 1965).

Like development, conservation in its modern form is a fruit of Enlightenment thinking. The same conceptual distinction between 'nature/natural' and 'human/social' was essential to the creation of conservation as a practical project. The idea of nature as 'pristine', with complexes of species existing in a natural state, matched a view of humanity as a destructive force analytically external to the natural world. In colonial Africa, governments explicitly conceived PAs to protect beleaguered nature against such assaults: protected against rapacious and unnatural humanity (Neumann 2004a). Not only was 'nature' physically set apart on the ground (in PAs), but also to a large extent human-created natures were conceptually disqualified from consideration as legitimate objects of conservation concern.

The idea of wilderness as a positive statement of the value of lands free from human presence and believed un-transformed by human action has long been a powerful motivator of conservation action (Nash 1973; Schama 1995; Cronon 1995, Rangarajan and Shahabuddin 2006). In the USA, and in Australia, wilderness became an important element in emergent national identity (Nash 1973; Dunlap 1999; Pyne 1997). However, the extent of the human transformation of the ecology of pre-Colonial North America has only been widely recognised relatively recently (Denevan 1992; Whitney 1994). For many years, previous human occupation of US parks was not acknowledged. Indian heritage was excluded from maps, whose new place names featured the parks' 'natural' wonders. Indigenous people were actively suppressed by military and bureaucratic action, and removed (Runte 1990; Jacoby 2001). Both indigenous people and settlers found themselves increasingly prevented from obtaining livelihoods from their former lands, now declared as parks (Jacoby 2001; Neumann 2004a).

In colonial Africa, strictly protected game reserves became the mainstay of British colonial conservation through the first-half of the twentieth century, a resort for gentleman hunters, whether traveller or colonial servant to experience hunt and kill 'wild' nature (MacKenzie 1988; Neumann 1996; Prendergast and Adams 2003; Adams 2004). Arguably, colonial conservationists maintained and policed in British Africa a version of the Victorian sportsman's country estate, a private wild land, long after that world had disappeared at home (Neumann 1996). Areas such as the lowveld of Southern Rhodesia (now Zimbabwe) were idealised in colonial discourse as wild and exotic lands, where colonial youth could develop a sporting spirit (Wolmer 2005) and African land was alienated to allow the creation of game reserves, in a process that the archival record demonstrates was a self-conscious attempt at wilderness creation in formerly inhabited lands. Similar ideologies were at work elsewhere in Africa (Ranger 1999; Neumann 1996; 2001), and in South Asia (Rangarajan and Shahabuddin 2006).

This model of a state-designated game reserve was underpinned by the British tradition of private reserves where the elite could hunt, and where non-proprietors lacked rights of access and use. Interestingly, in Britain itself, there was an understanding that nature was not particularly pristine. When national parks were eventually designated in England and Wales (after 1949), they were essentially planning designations, to protect beautiful lived-in landscapes (Sheail 1981; MacEwen and MacEwen 1982). They were created in fairly remote hill or coastal areas such as the Peak District, Lake District, Exmoor or Dartmoor (Sheail 1975; Adams 1996). These parks comprised mosaics of private landholdings, mostly under low-intensity agriculture and livestock farming. In contrast, PAs in the British Empire were imagined as wilderness, not human-fashioned landscapes.

The ideas of pristine nature and un-peopled wilderness spread in the twentieth century as an ideological framing of nature. Thus the idea of Africa as an 'unspoiled Eden' (Anderson and Grove 1987: 4), or 'a lost Eden in need of protection and preservation' (Neumann 1998: 80) was a potent element in colonial thinking about national parks in that continent. The 'wilderness' of the Selous Game Reserve was created by the displacement of some 40,000 people (Neumann 1998). This wilderness, like that of the first national parks in the US, had to be created before it could be protected (Neumann 2004a).

Yellowstone and its successors in the USA became the dominant global model for national parks, and with them came the concept of wilderness. In London in 1906 a delegation from the recently established Society for the Preservation of the Wild Fauna of the Empire told the Secretary of State for the Colonies that it was 'the duty and the interest of Great Britain' to follow the US example in East Africa.[11] That did not happen until the 1940s, but the model was already being copied in the British Dominions (Australia 1879,[12] Canada 1887 and New Zealand 1894), as it was in the Belgian Congo in 1925 and in South Africa in 1926 (Fitter with Scott 1974; McNamee 1993). Later, the Yellowstone model of state-owned exclusive 'wilderness' parks was adopted in East Africa and then globally (Neumann 2002; Jepson and Whittaker 2002; Adams 2004). With the Yellowstone model often went the same experience of evictions and exclusions, for example in Australia, Russia and Canada (Poirier and Ostergren 2002; Langton 2003; McNamee 1993) and widely in European colonial territories (Homewood and Rodgers 1991; Neumann 1998; Ranger 1999) and elsewhere (Colchester 1997; 2002).

The demarcation of separate spaces for nature and human settlement continues to the present day, an integral aspect of the way the modern state classifies, organises and simplifies complexity (Scott 1998). The specific idea that sparsely settled lands can usefully be described as 'wilderness' or 'Eden' continues to dominate popular accounts of PA creation. It is typical that the title chosen by National Geographic for an article about the 1200 km 'mega transect' by American biologist Michael Fay through central Africa, which helped stimulate a decision by the President of Gabon to announce a series of thirteen new national parks in 2002 (some of which turned out to be inhabited by hunter-gatherer people), was entitled 'Saving Africa's Eden' (Quammen 2003).

The ideas of wilderness, or pristine nature, set apart in PAs and sheltered from human impacts, also continues to underlie the science-based planning approaches to the selection of PAs developed in the 1990s (Margules and Pressey 2000). Satellites, imaging systems, global positioning systems and geographic information science software allowed new assessments of land cover change to be made and repeated. Computers, of increasing power and decreasing cost, provided new mechanisms for information storage and exchange. The aim of this development of 'cartographically enabled priority setting' (Brosius 2006a) or 'conservation biogeography' (Whittaker et al. 2005) was to concentrate conservation effort on areas of greatest need in a systematic response to the challenge of extinction (Myers et al. 2000: 853). This new biodiversity science was inherently global in scope, both in the scale of its analysis and in its view of conservation resources as essentially globally flexible (Zimmerer 2006a, b; Brooks et al. 2006). Priority-setting approaches such as the idea of 'hotspots' (Myers et al. 2000; Mittermeier et al. 2005) have proliferated (Mace et al. 2000). Brooks et al. (2006) identity nine 'global biodiversity prioritisation templates' developed by NGOs, variously mapping the vulnerability of habitat and its irreplaceability in terms of living diversity.

The power of conservation planning lies in the development of protocols that identify categories of both nature and people, and fix them into a planning process that sets priorities, and uses GIS analysis and maps to specify zones and targets for action (Fairhead and Leach 2003). In the Philippines, largely external perceptions of biodiversity led to a process of strategic conservation planning by international conservation NGOs (Bryant 2002). This used expert knowledge of the distribution of species and ecosystems to frame and focus government policy. Local uses of nature had little or no place in this analysis, and local people played little or no part in the planning process itself.

## THE SOCIAL IMPACTS OF PARKS

The spatial strategy of setting aside PAs for conservation has inevitable social and economic impacts. These have long been acknowledged (McNeely and Miller 1984; McNeely 1993; Adams and Hulme 2001a) and are relatively well understood and widely reported (Emerton 2001; O'Riordan and Stoll-Kleeman 2002a; Igoe 2006). Direct costs to neighbours include hazards from crop raiding wild animals such as elephants, buffalo, primates and a host of smaller species (Naughton-Treves 1997; Sekhar 1998; Woodroffe et al. 2005). Problems include crop damage, the labour and opportunity costs of crop defence (e.g. impacts on children who do not attend school), physical hazard (and fear of hazard) and death. Park neighbours can also be exposed to corrupt rent-seeking behaviour by PA staff, particularly linked to minor infringements of park boundaries (e.g. impoundment of stock alleged to be grazing illegally), or of regulations (e.g. informal charges to avoid arrest or fines for cutting fuelwood, or collecting medicinal plants).

The greatest social impacts of PAs, however, relate to population displacement. The issue of resident people in PAs is widely recognised (West and Brechin 1991), especially in the case of indigenous people (Colchester 2002; Chatty and Colchester 2002). There have been a number of reviews the problem (e.g. Geisler 2003a; Rangarajan and Shahabuddin 2006; Agrawal and Redford 2007). The complexity and enduring nature of post-resettlement impacts is known from research on the short- and long-term impacts of forced displacement in contexts such as dam construction (e.g. Scudder 1993; 2005; Cernea and McDowell 2000).

Displacement from PAs needs to be understood in a broad context. In 2004, the World Bank changed its guidelines on resettlement, extending the definition of 'involuntary displacement' to include the restriction of access to resources in PAs, even where no physical removal occurs (Cernea 2006).[13] The phrase 'involuntary restriction of access' covers restrictions on the use of resources imposed on people living outside a PA as well as those living inside it. In the context of PAs, displacement includes loss of rights to residence, loss of rights to use land and resources, foreclosure of rights to future use and loss of non-consumptive use values, for example access to places of religious or cultural value. The economic cost to local or national economies of PAs can be considerable. Agricultural benefits foregone can be significant (e.g. Norton-Griffiths and Southey 1995), even if offset by factors such as carbon storage in protected forest vegetation (e.g. Kremen et al. 2000).

Population displacement from PAs has a direct impact on livelihoods (e.g. Brechin et al. 2003; Chatty and Colchester 2002; McElwee 2006). Forced resettlement exposes displaced people and those in receiving communities to a wide range of risks of impoverishment (Scudder 1993; Cernea and McDowell 2000). These include landlessness, joblessness, homelessness, economic marginalisation, food insecurity, increased morbidity and mortality, loss of access to common property and services and social disarticulation (Cernea 1997).

There is no accepted estimate of the total numbers of people displaced from PAs across the globe. Most published studies focus on particular cases, for example in Nicaragua (Kaimowitz et al. 2003), Tanzania (Neumann 1998; Brockington 2002), Uganda (Feeny 1999) or Zimbabwe (Ranger 1999). Some widely quoted cases of eviction, notably Turnbull's account of the plight of the Ik people following removal from Kidepo National Park, have subsequently been judged inaccurate (Turnbull 1974; Heine 1985). Others are still inadequately documented (Colchester 2002).

Attempts to establish the scale of evictions quantitatively are still experimental. Some estimates, derived by multiplying average population densities and the area of PAs, lead to surprisingly high figures. Geisler and de Sousa (2001) suggested there may be 14 m to 24 m 'environmental refugees' as a result of exclusionary conservation in Africa alone. Cernea and Schmidt-Soltau (2003) estimated that 40,000 to 45,000 people had been displaced or directly affected economically by displacement from nine PAs in central Africa. They subsequently argue that 120–150,000 people have been displaced or impoverished by 12 parks in six central African countries (Cernea and Schmidt-Soltau 2006). The analysis on which these figures are based has been challenged, and they clearly need to be treated with considerable scepticism (Maisels et al. 2007). However, the currently published evidence base does indicate that population displacement is a real, and in many instances a significant, problem associated with PA establishment in a number of contexts (Brockington and Igoe 2006; Agrawal and Redford 2006).

A number of commentators have drawn attention to the use of force in programmes of involuntary population displacement. States claim legitimate power to enforce socially desirable outcomes, and on this ground, the protection of nature as state policy has often involved coercion, particularly where it has involved the displacement of human communities from PAs (Peluso 1993). The military-style control of PAs that arose from the model of US National Parks has been maintained and developed in many countries, most prominently perhaps in Kenya (Leakey and Morell 2001). Parker (2004) graphically describes the bombing of fleeing Somali poachers in Tsavo National Park in the 1950s with hand grenades. Neumann (2004b) analyses the moral context for the use of extreme force in conservation, drawing attention to the bizarre existence of 'shoot-to-kill' policies against poachers in countries where poaching is not a capital offence. As Peluso (1993) observes, in this militaristic worldview conservationists are constructed as heroes, literally fighting to protect nature against humankind. Military action is legitimised by the ontological separation between people and nature, and the construction of nature's value and threatened state.

Population displacements for one purpose can often end up serving another. Thus in colonial Tanganyika, the attempt to separate nature and people in Liwale District was driven in part by the sanitary objective of reducing sleeping sickness, concentrating people in agricultural districts, and leaving land further from the coast, deemed both wild and unhealthy, for nature (Neumann 2001). Similarly, the Parc National Albert expanded onto land cleared in 1933 by the colonial state as part of its drastic sleeping sickness campaign in the Belgian Congo (Fairhead and Leach 2000; cf. Lyons 1985). Conservation planners have often been entrepreneurial in this way in recognising the value of 'created wilderness:' the land lost by the Meru Mbise people on Tanzania to the Arusha National Park in Tanzania was initially taken for white settler farms and forest reserves, only subsequently being purchased by the state and conservation NGOs to extend the park (Neumann 1998). Similarly, the violent forced resettlement of Tonga people from their land along the River Zambezi before the flooding of the reservoir behind the Kariba Dam in the 1950s (Howarth 1961) preceded the creation of new 'wilderness' PAs in Zimbabwe (McGregor 2005).

Attitudes to human presence in PAs have of course varied, even in colonial Africa. 'Squatters' were evicted from the Pongola Game Reserve in the nineteenth century, and its successor the Sabi Game Reserve, but were later (after 1905) tolerated because they provided a source of labour and rent, although the administration continued to complain of their resistance to discipline and their poaching (Carruthers 1995). The more common historical pattern is for initial acceptance of human presence in a park to give way to intolerance either as ideas about the need to protect 'pristine' nature change or as human populations grow, or both. Thus, Brooks (2005) reports a measure of tolerance of people in and adjacent to the Hluhlue Game Reserve in the Zululand in the 1930s, prior to fencing and eventual eviction in the 1940s. Brockington (2002) describes the eventually successful attempt to evict Parakuyo and Maasai pastoralists from the Mkomazi Game Reserve in Tanzania, in 1988, a full four decades after it was first designated.

Ironically, too, the displacement of people from PAs has long been dependent on identity. Tourists and scientists have conventionally been tolerated in PAs even where local resource users have been excluded. It is easy to imagine why conservationists might think that the work of scientists should be dealt with differently from other human activities, because of the role of natural science in conservation planning. However, it is more surprising that tourism (whose impacts were recognised early in the twentieth century, and whose depredations strengthened the case for Federal involvement in national parks in the USA in the first place) has been so widely treated differently to other kinds of human activity. As discussed in the next section, tourists were on balance thought useful, and their impacts judged a price worth paying. Tourism was tolerated; hunting and other forms of resource use by local people mostly were not.

The use of force by the state in the defence of PAs is but one example of the wider issue of governance and conservation. Where conservation organisations work in countries with poor human rights and governance records (such as Burma, Graham-Rowe 2005) there are major ethical issues for conservationists to face: as the journal *Nature* observed, 'a true believer in any cause can ignore uncomfortable facts that conflict with its goals' (Nature 2005: 855). While the importance of issues of governance and corruption is beginning to be acknowledged by conservation practitioners (Smith et al. 2003), interest so far is as much in the ways these limit the effectiveness of conservation as wider issues of rights and justice (Zerner 2000).

Terborgh (1999) suggests that 'order and discipline' is needed to preserve biodiversity in the 'dysfunctional societies' of many developing countries (p. 192). He extends his argument for stronger governance to call for internationally financed elite forces legally authorised to carry arms and make arrests (Terborgh 1999). Such forces already exist, outside the control of any state. Clynes (2002) describes the work of non-governmental para-military 'counter-poaching' activities in the Central African Republic, organised by Africa Rainforest and River Conservation specifically to combat commercial Sudanese poaching gangs.[14] Neumann (2004b) argues that there has been a systematic qualitative shift in the level of violence with which biodiversity protection strategies are pursued in Africa, as the moral tension between fear of extinction and respect for human rights tightens. Whatever the balance of rights and wrongs in particular cases, it is clear that, as Brockington (2004) cynically notes, coercion has apparently become a feasible long-term conservation strategy where conservation interests are powerful and local opposition is weak.

## THE POLITICAL ECONOMY OF CONSERVATION BENEFITS

Of course, PAs also bring benefits. Most fundamentally, perhaps, people locally and regionally can benefit through ecosystem services. The Millennium Ecosystem Assessment identified four kinds of service, provisioning services such as food, water, timber and genetic resources; regulating services such as waste treatment or the regulation of climate or flooding; cultural services such as recreation and aesthetic enjoyment; and supporting services such as soil formation, nutrient cycling and plant pollination (World Resources Institute 2005). It is widely recognised that the presence of habitat in PAs reflects a real, and potentially measurable, contribution to human welfare. The idea of payments for ecosystem services provides a possible mechanism for the conversion if these values into streams of revenue.

The biodiversity and landscape of PAs can also provide the resource for a tourist industry. Local people can receive a share of revenues from tourist fees and from related economic activities (e.g. tourist facilities). Arrangements can include direct employment, land leasing or licensing arrangements, community equity or profit-share schemes, or independent locally owned commercial activities (such as selling curios, food or cultural performances to tourists; McNeely and Miller 1984; Wells and Brandon 1992; World Conservation Union 2005). The idea of parks as the foundation for the development of a tourist industry is long established. In Africa at least, national park advocates pragmatically turned a blind eye to such impacts. They proposed National Parks to provide protection from development that might otherwise attract a short-sighted government, for example mining or agriculture (Hingston 1932). However, by a neat twist of logic, they also argued that national parks provided the basis for economic development, in the form of the tourist industry (Adams 2004). Tourism, by train and later by motor car, was central to arguments for the development of national parks in the USA and Canada (Runte 1987; McNamee 1993; Wilson 1992), and a little later in South Africa (Carruthers 1995; Brooks 2005).

Economic benefits are also available to park neighbours if development investment is targeted on ‘support zones’ around a PA (e.g. Archabald and Naughton-Treves 2001). However, such benefits are often much smaller than planners predict (Walpole and Thouless 2005), and many actors in addition to local people demand a share of available funds, including local and national government agencies and departments (Adams and Infield 2003).

Access to benefits from conservation (such as social investment or development funds, or profit sharing from tourist enterprise) is typically in the hands of employees of the state national park authority. It is subject to rules of eligibility (e.g. formalised membership of a selected community in immediate proximity to the park border) and compliance with a range of regulations. In such arrangements, there is ample room for elite capture of revenues. Paudel (2006) analyses the distributional inequities of conservation programmes in Nepal, even those intended to benefit local people. PA staff such as low-paid manual workers employed in and around PAs may themselves face economic hardships (Sodikoff 2007).

The illegal extraction of economic benefits from PAs can also be significant. Direct illegal benefits for local, communities (or others) come from practices such as hunting, grazing, collecting food or making charcoal. Indirectly, benefits come from corrupt practices associated with the licensing of use or access by state agencies and their employees, or the extraction of illegal rents through granting or overlooking illegal access, or threatening local people with punishment for real or imagined trespass (Brandon et al. 1998; Smith et al. 2003). The conventional strategies to counter such illegal activities are revenue sharing (discussed above), 'community outreach' activities such as education (e.g. Infield and Namara 2001; Holmes 2003), and more intense and effective policing. However, outreach activities are notoriously difficult to focus on those who break the law, and rhetoric is a poor counter to hunger and grievance against injustice. Persuasion of itself does little to outweigh economic incentives to break the law: poaching clearly often pays (Milner-Gulland and Leader-Williams 1992). The cost of intense policing can be large (Leader-Williams and Albon 1988), and the exercise of arbitrary power by conservation agencies is deeply problematic (Neumann 2004b).

The creation of PAs generates a stream of legal and illegal benefits but both tend to reproduce existing economic inequalities within local communities and wider society (Paudel 2006). There is no reason to expect illegal revenues to be any more equitably distributed than those that are legal, since capacity to hunt and willingness to bear risks vary between and within households. There is also inequality in the less tangible benefits of the existence value of the species and habitats preserved in PAs. A crude distributional logic applies to these benefits, for while in theory they are available to local people, in practice they are chiefly appropriated by remote and relatively wealthy wildlife lovers in developed countries (and to a lesser extent local urban elites), both through surrogate knowledge about species survival and through direct tourist experiences. These beneficiaries provide, of course, the funding for international conservation organisations that advocate the establishment of PAs. Thus the costs of PAs are mostly born locally, while benefits accrue globally (Balmford and Whitten 2003). It is widely argued within conservation that where people living with PAs face economic costs due to the park, they should clearly be fully compensated (Adams and McShane 1992; Tacconi and

Bennett 1995; James *et al.* 1999). Logically, revenue for this purpose needs to be derived in some way from those who enjoy the wider global benefits of parks (Balmford and Whitten 2003). Some argue that payments for ecosystem services may provide a mechanism for such funding, but the necessary institutions have not yet been developed on anything but an experimental scale.

## INDIGENOUS PEOPLE AND PROTECTED AREAS

The broadening of international debate about people and conservation from the 1980s transformed (and was transformed by) changes in thinking about the issue of the rights of indigenous people in PAs. This reflects the growing strength of the global indigenous people movement and their arguments about social justice, and growing attention on the social, cultural and economic impacts of parks on indigenous people. In the 1970s and 1980s, experience in Canada and Australia stimulated changes in the way indigenous land title and resource rights were understood globally (Colchester 1997; Langton 2003). In Canada for example, the Berger inquiry into the Mackenzie Delta oil pipeline, and the Inuvialuit Final Agreement in 1984 helped change national park policy with regard to Aboriginal right and title (Berg et al. 1993). In Australia, the Cape York Peninsula Heritage Bill, passed in 2007, provided a basis for indigenous management of land in the region through activities such as aquaculture, grazing and agriculture, while protecting sensitive areas by designating ‘areas of international conservation significance’.[15]

Many have argued that there is substantial common interest between indigenous people, who wish to retain their rights to land (particularly forest land) in the face of competing demands, and conservationists who wish to maintain habitat for its biodiversity (e.g.Gadgil et al. 1993; Kemf 1993). Others point out that such arguments tend to trade on essentialised and romanticised images of the non-Western primitive ‘other’, the ‘ecologically noble savage’, living in harmony with nature (Redford 1990; Conklin and Graham 1995). The interests of indigenous people in development even within the broad frame of a forested landscape can be different from those of biodiversity conservationists concerned to promote the survival of all species (Redford and Stearman 1993; Redford and Sanderson 2000). Strategic alliances, based on conservation support for securing indigenous land rights, are therefore possible, but not automatic and not necessarily easy (Redford and Stearman 1993; McSweeny 2004). Attempts to broker partnerships, however, need to start from the recognition of indigenous people as ‘equals at the discussion table’, not (as so often in the past) as subaltern groups to whom rights might be conditionally ceded by pragmatic conservation proprietors (Alcorn 1993). Moreover, such partnerships must address the widely embedded intolerant and coercive approaches of park planners and managers to indigenous residents in parks (Colchester 1997, 2002).

While arguments about the rights of indigenous people based on first occupancy are unique, other aspects of their rights and needs are less distinct from those of other long-standing rural residents. Moreover, the concept of indigenous people, which works so well in the Americas where European settlement has been so overwhelming in its impact, is less useful in other areas (e.g. tropical Africa), where many disputes about land rights between people of different ethnic identity can be less clear-cut. While indigenous people have been the primary focus of campaigns, increasingly policy debate has broadened to embrace the rights and needs of other local communities, whether resident (e.g. in forests), or mobile (e.g. pastoral people).

The World Parks Congress in Durban in 2003 represented a major step forwards in this debate. In 2000 the IUCN World Commission on PAs and the Commission on Environmental, Economic and Social Policy created TILCEPA, the Theme on Indigenous and Local Communities, Equity, and PAs.[16] At the Durban Congress in 2003, TILCEPA organised a cross cutting theme on communities, equity and PAs, with various workshops and panel discussions that ensured that this theme was represented in the various discussions at the Congress. An 'Indigenous Peoples Ad-Hoc Working Group' was established in January 2003, 120 indigenous participants were sponsored to attend the conference, and various consciousness-raising events were held, including an open discussion meeting between leaders of some of the major international conservation NGOs and indigenous representatives (Brosius 2004).

As a result of this engagement, one of the ten outcomes of the Durban Action Plan was that: 'the rights of indigenous peoples, including mobile indigenous peoples, and local communities should be secured in relation to natural resources and biodiversity conservation' (World Conservation Union 2005). There are numerous provisions here long demanded by non-governmental organisations representing indigenous people, including Key Target 10, which calls for participatory mechanisms for the restitution of lands incorporated into PAs without 'free and informed prior consent'. There is also recognition of a diversity of forms of PA governance, including co-managed and community-managed PAs (community-conserved areas).[17] The indigenous peoples' initiative at Durban was pursued at the Conference of the Parties of the Convention on Biological Diversity in Kuala Lumpur in February 2004, and the World Conservation Congress in Bangkok in November 2004.

Issues of indigenousness, and ethnicity and identity more generally, add a complex and important dimension to wider debates about the legitimacy and impacts of PAs. The question of the rights of indigenous people has become a central element in debates about the political ecology of conservation (Brockington 2002; Chatty and Colchester 2002; Hecht et al. 2006)

## POVERTY AND CONSERVATION

Rights-based thinking has influenced debate about conservation more broadly through consideration of global poverty. Ideas about the social dimensions of conservation policy changed in the 1990s in response to the new international agenda for the elimination of poverty, reflected in the Millennium Development Goals and the concept of National Poverty Reduction Strategies.[18] At the World Summit on Sustainable Development in Johannesburg in 2002 the issue of poverty took prominence, and the previously obvious links between conservation to poverty alleviation began to be questioned (Roe and Elliott 2004). There was widespread engagement with the idea that there were 'win-win' solutions that could achieve conservation and poverty-alleviation goals simultaneously (e.g. Timmer and Juma 2005).

Broad arguments continue to be made that the conservation of biodiversity can and should contribute to poverty alleviation (e.g. Koziell and Saunders 2001; Roe et al. 2003; Brockington and Schmidt-Soltau 2004). Major programmes such as the United Nations Development Programme's Equator Initiative[19] aim precisely to reduce poverty through the conservation and sustainable use of biodiversity (Timmer and Juma 2005). In September 2005, a statement from the Secretariats of the five biodiversity conventions argued that biodiversity underpinned all MDGs. Biodiversity could, they suggested, help alleviate hunger and poverty, promote good human health and 'be the basis for ensuring freedom and equity for all'.[20] One such argument, that ecosystem services underpinning welfare and livelihoods, particularly (although not exclusively) of the poor was central to the Millennium Ecosystem Assessment (World Resources Institute 2005).

On the other hand, some argue that conservation and poverty are quite different problems and that parks and those who manage them should not be held responsible for tackling the global human challenge of poverty. Brandon (1998) suggests that parks were unfairly being made responsible for curing structural problems such as poverty, unequal land and resource allocation, corruption, injustice and market failure. Sanderson and Redford (2003b: 246) note that 'as conservationists we have neither the legitimacy nor the power to redress the distributive inequalities nor the damages of development in our work'. Some conservationists have expressed concern that the momentum of the development agenda has been such that biodiversity conservation has been forgotten (Sanderson and Redford 2003a) or even that conservation has 'fallen off the bandwagon' (Sanderson 2005: 326).

Indeed, the environment was reflected in the MDGs only in Goal 7, which referred broadly to the need 'to ensure environmental sustainability'. However, the indicator selected for this goal (the ratio of area protected to maintain biological diversity to surface area) was conservative, reflecting only the conventional PA approach.[21] Without evidence that PAs contribute to the livelihoods of the poor, this sets up biodiversity conservation as a constraint on poverty alleviation, not a means to achieve it. The Strategic Plan of the Convention on Biological Diversity, adopted in 2002, also focused strongly on PAs. A key element in its aim to achieve a significant reduction of the current rate of biodiversity loss at the global, regional and national level by 2010 was the completion of a world system of PAs. The first of twenty targets agreed was that at least 10% of each of the world's ecological regions should be effectively conserved.

The debate on poverty and conservation has become more sophisticated as well as more complex (Adams et al. 2004). Sanderson and Redford argue that development has failed the truly poor, and there is ample room for conservation organisations (practicing 'human-orientated small-scale conservation') to work with 'small-scale low-output producers on the ecological frontier' (Sanderson and Redford 2003a: 390). There are calls for new approaches to PAs, and alternatives to PAs (Roe and Elliott 2004), and there is recognition of the complexity of the linkages between biodiversity and poverty (Agrawal and Redford 2006). These are dynamic and context specific, reflecting social and political factors and issues of geography and scale (Kepe et al. 2004). Globally, the political challenge of conservation is increasingly being framed in terms of the environmental claims of the rich *vs* the subsistence needs of the poor. Global discourses of extinction bear directly on local issues of rights and human welfare, a cross-scale engagement that political ecology is well placed to explore (Stott and Sullivan 2000; Neumann 2004c).

## NEW PARKS ADVOCATES

While some strands of thinking about people and parks are increasingly open to the idea of people (especially but not exclusively) living within or profiting from PAs, others are strongly opposed to this approach. In the 1990s, in a deliberate reversal of community-based approaches to conservation then current, arguments for traditional socially exclusive parks were renewed (e.g. Kramer et al. 1997; Brandon et al. 1998; Oates 1999; Struhsaker 1999; Terborgh 1999). This 'resurgence of the protectionist paradigm' (Wilshusen et al. 2002) has been variously described by its critics as a 'back to the barriers' movement (Hutton et al. 2005), and as 'reinventing the square wheel' (Wilshusen et al. 2002).

Advocates of strictly protected 'people-free parks' (cf. Redford et al. 1998; Schwartzman et al. 2000) or 'hard parks' (Terborgh 2004) reflect the longstanding conservation conviction that the preservation of biodiversity is an overwhelming moral imperative (Kramer et al. 1997; Terborgh 1999). They draw on critiques (largely by social scientists) of community conservation and the numerous attempts to combine conservation and development that dominated conservation thinking in the 1980s and 1990s (Brandon and Wells 1992; Barrett and Arcese 1995; Gibson and Marks 1995; Brosius et al. 1998; Wainwright and Wehrmeyer 1998; Adams and Hulme 2001b; Jeanrenaud 2002).

Advocates of strict parks suggest that while community approaches to conservation waste scarce conservation resources, PAs work if they are strictly protected (Brandon et al. 1998; Bruner et al. 2001; Naughton-Treves et al. 2005), well resourced and properly managed (Balmford et al. 2002).

An important factor underlying this renewed enthusiasm for PAs is the question of the role and authority of natural science in conservation. The context is the rapid advance in the competence, ambition and authority of conservation science in recent years. Conservation scientists recognise that PAs have in the past been selected in an ad hoc way. Some are poorly placed to represent biodiversity globally, and a new sophistication has developed in conservation planning and the design of PA systems (e.g. Margules and Pressey 2000). In response to greater understanding of the biogeographic implications of isolation and small reserve size for the survival of species (especially under conditions of rapid climatic change), there has been an expansion of scale in conservation planning, with park systems being analysed at the landscape scale and in terms of global conservation priorities (e.g. Duffy 1997; Wolmer 2003; Fonseca et al. 2005). Conservation scientists have disputed the easy assumption that people and non-human biodiversity can be accommodated together without conflict. Thus, Redford and Stearman (1993) argued that the full range of biological diversity (genetic, species and ecosystem diversity) was impossible if there was prevented by 'virtually any significant activity by humans' (p. 252). Struhsaker (1999) offers a similar vision to Redford's 'empty forest' (1992), noting of Ugandan forests that 'in terms of conserving biological diversity within intact and viable ecosystems, there is no substitute for large areas that are protected against invasive and destructive human activities' (p. 329).

Perhaps unsurprisingly, some conservation enthusiasts appear to see social critiques of parks as an attack on newly developed and newly influential conservation science and deplore the influence of non-scientific reasoning in thinking about parks. Terborgh (1999) speaks of sustainable use as 'a gray zone', one where 'politics, economics, and social pressures, not science, decide what is good for humans, with scarcely a nod to nature' (p. 140). He found the workshops on poverty alleviation, social injustice and indigenous peoples' rights at the World Parks Congress at Durban in 2003 'a culture shock and a reality check' (Terborgh 2004: 619). The way these issues were discussed at Durban seemed to relegate science to a footnote in PA planning.

Fears for the authority of science in conservation relate to more general concerns about the politics behind critiques of conservation from a social perspective. Spinage (1998), in the course of an extended and critical review of the book *Social Change and Conservation* (Ghimire and Pimbert 1997), argued rather wildly that its authors variously exhibited 'the left-wing radicalism of the opposition to the practice of traditional conservation', and were 'cloaked in Marxist and neo-populist dogma' (p. 265). He argued that if change is to come in conservation, 'it should be based on ecological criteria and not political ideology' (p. 274). Such views ignore the way mainstream thinking about parks had already changed to consider social issues (Colchester 1998), but they are not unique: Attwell and Cotterill (2000) link the move away from traditional preservationist conservation to 'postmodernist influences', unhappily lumping under that umbrella everything they dislike about social and political analysis of conservation practice. Soulé (1995) describes the rise of social constructivism as part of 'a cultural or social siege of nature' (p. 147). Such comments reflect a lack of understanding of social science theory as much as a coherent view of critiques of the social and political dimensions of parks. Conservation planning is dominated by people trained in the natural sciences, and who draw fairly exclusively on science-based paradigms in their thinking. They are often not well placed to understand and respond to social critiques of their ideas and methods. The influence of scientific ideas, and the wider frame of reference it offers to conservation planners, is a key issue in the political ecology of conservation (Bryant 2002; Fairhead and Leach 2003; Brosius 2006a).

## THE POLITICAL ECOLOGY OF CONSERVATION

The political ecology of conservation is highly complex and diverse. Whether in the work of contemporary scientific conservation planners, identifying and lobbying for the preservation of hotspots, or the work of their colonial forbears, certain ideas of nature are formulated, purified and harnessed to social action in ways that reveal profound differences in the power of different actors. Ideas of nature are laid out on the ground in PAs, and the needs, rights and interests of people are bent to fit the resulting conservation landscape. All this takes place against the backdrop of a wider social assault on nature through processes of industrialisation, urbanisation, pollution, and the conversion of terrestrial and marine ecosystems to industrial purposes.

Several current issues and trends can be identified. The first is the power of conservation science as a strategy for analysing and understanding nature, and for prioritising action. Meine et al. (2006) emphasise the hybrid, applied 'mission-driven' character of the discipline of conservation biology, and Mascia et al. (2003) argue coherently that conservation must reach out beyond its traditional base in the natural science and generate conservations with all kinds of other disciplines and actors. However, these are still minority views. Notwithstanding the proliferation of often-incompatible proposals for conservation action (Brooks et al. 2006), natural science analysis is still almost universally accepted with conservation as the starting point for the analysis of conservation need and for the prescription of priorities for action.

The second trend that can be discerned relates to the growing scale and scope of criticism of conservation. Notwithstanding the arguments of strict park advocates, there is widespread international policy recognition that biodiversity conservation can and does have significant social impacts, and that these need to be addressed. The importance and complexity of the trade-offs between conservation and poverty are being widely recognised (Brockington and Schmidt-Soltau 2004; Sanderson and Redford 2003a; Adams et al. 2004; Agrawal and Redford 2006). Benign but uninformed hopes about common interests need to be replaced by research-based understanding of the conditions under which different outcomes can be expected (Gjertsen 2005; Sunderlin et al. 2005). Furthermore, it is acknowledged that the whole range of social impacts of conservation needs to be recognised and dealt with by those proposing and managing PAs (Tacconi and Bennett 1995).

Third, conservation is undergoing a process of self-criticism and reform as it seeks technical improvement and tighter self-regulation with respect to its social policies and procedures. This process matches technically orientated and regulation-based responses to wider environmental problems defined by analysts as 'ecological modernisation' (Hajer 1995). Conservation planners in governments and non-governmental organizations are urged to adopt established methods such as Social Impact Assessment in search of more socially equitable and effective conservation planning (Geisler 2003b). PAs share with other major projects imposed by the state in partnership with international actors (notably large dams, Scudder 2005), the capacity to deliver significant public goals but also to impose significant local costs. Those who plan and manage PAs lag seriously behind in their response to these issues. A broad constituency supports an end to forced displacement for conservation. Planning for resettlement must involve a serious commitment to equity and finance for the complex and challenging task of reconstruction (Cernea 1997). In the central African case studies reviewed by Cernea and Schmidt-Soltau (2003), no compensation was paid, or planning done to help those displaced re-establish livelihoods elsewhere, or to help the communities that received them. It is an obvious argument that standards for responsible resettlement established by organisations like the World Bank need to be adopted by conservation NGOs. Interestingly, in 2004 the Convention on Biological Diversity (CBD) agreed, under its Programme of Work on PAs, that resettlement of indigenous communities should only take place with full prior informed consent.[22]

The fourth trend that can be identified is the continuing power of international conservation organisations, particularly the largest non-governmental organisations (Brosius 1999b, 2006a; Bryant 2002; Chapin 2004). However desirable the improvements in the techniques of conservation practice, they do not change the fundamental politics of global conservation. These organisations, and the scientists, intellectuals and supporters from whom they draw their vision and strength, have remarkable power to define and delineate nature, to determine who can engage with it and under what rules, and to divide landscapes into zones that structure rights and access.

The trend towards ecological modernisation is certainly tending to contribute to the regulation of that power. Fortwangler (2003) argues that a commitment to social justice and human rights is a necessary element in a legitimate social mandate for conservation. It is argued that the strictures of corporate social responsibility and transparency that have become a familiar trope for international corporations equally applicable to non-governmental corporations, which are increasingly corporate in their structure and trans-national in their scope (Brosius 1999b; Chapin 2004). Recognition is growing of the need for a new understanding of conservation as a social and political process (e.g. Brechin et al. 2002, 2003; O'Riordan and Stoll-Kleeman 2002b; Brosius et al. 2005). Conservation planning and management needs the kinds of 'inversions' much debated in development planning in recent decades, from a top-down expert-driven blueprint approach, towards participatory and inclusive social learning (e.g. Pretty 2002) and towards shared governance and deliberative democracy (O'Riordan and Stoll-Kleeman 2002b).

A fifth emerging trend in the political ecology of international biodiversity conservation is the growing influence of neoliberal thinking. This takes several forms. One is simply the increasingly corporate organisational structures and cultures of conservation NGOs (Brosius 1999b, 2006a; Chapin 2004). There is significant competition, for membership, grant income from trusts and aid donors, and particularly for corporate funds (Chapin 2004). The rise of conservation planning and the science-based solutions-orientated prioritisation strategies reviewed above reflects the desire to present conservation goals in terms corporate sponsors will appreciate. The rapid diversification of biodiversity mapping algorithms (Brooks et al. 2006) to an extent reflects the desire of each NGO to create its own classification (Redford et al. 2003). Thus, for example, the definition of 'hotspots' by Conservation International was not simply a contribution to scientific knowledge and the improvement of conservation planning in general, it was also statement of the brand of the organisation and its capacity for leading-edge strategic thinking.

One consequence of the growing importance of neoliberal approaches to conservation is the growing involvement of the private sector in the tenure and management of PAs, raising complex issues of rights, ownership, governance and legitimacy. The concept of private parks, or parks managed by corporate non-state actors, is of increasing salience in conservation (Langholz and Krug 2004). The increasing engagement of the private sector in conservation landholding has been driven in part by growing dissatisfaction with the effectiveness of tropical PAs (Kramer et al. 2002), and the fact that most biodiversity exists outside formally protected land, much of it private (Langholz and Krug 2004). Policies to promote the conservation value of private land have been widely developed, for example in the USA (Newburn *et al*. 2005; Sanford 2006), in Europe (Kleijn and Sutherland 2003) and in southern Africa, in the game ranching and safari industries (Duffy 2000; Suzuki 2001; Wels 2004).

The 2003 World Parks Congress recommended revision of IUCN PA categories to include co-managed, privately managed and community-managed

PAs (World Conservation Union 2005, Recommendation V17) as well as community-conserved areas (Recommendation V 26). The private sector was recognised as one of the partners (with government bodies and agencies, indigenous and local communities and NGOs) who could share management authority, responsibility and accountability in co-managed PAs (Recommendation V 25). However efficient such semi-privatised management may be at some levels, it is clearly no guarantee of improved social policies or reduced impacts. In Ethiopia, the clash between the rights and interests of Mursi people and the desire of conservationists and the state to create national parks has been recognised in the international literature for two decades (Turton 1987, 2002). Yet in 2004, when the APF signed an agreement with the government to manage the Nechasar National Park, 463 houses of Guji people were burned by Ethiopian park officials and local police to force them to leave.[23] The APF has also taken over the Omo National Park in Southern Ethiopia, inhabited by up to 50,000 people from various ethnic groups (Hurd 2006), among others elsewhere in the continent.[24] Informed commentators see little in such private enterprise parks to still their fears for the rural poor.

There is increasing number of examples of conservation NGOs (and wealthy individuals) purchasing or leasing land and resource rights from governments, for example leasing logging concessions for sustainable conservation enterprise development rather than clear-cutting (Ellison 2003; Romero and Andrade 2004). Neoliberal thinking is also behind the rise of experiments with ‘direct payments’ for conservation (Ferraro and Kiss 2002; Balmford and Whitten 2003). In these developments towards the ‘privatisation of nature’, biodiversity conservation is simply reflecting wider neoliberal trends in global environmental governance (Wolmer 2003; McCarthy 2006; Christiansen et al. 2005).

Despite the hopeful rhetoric of the 2003 World Parks Congress in Durban about a new way of understanding and managing national parks, and its recommendation that all involuntary resettlement and expulsions of indigenous peoples from their lands for PAs cease, population displacement and injustice are still a feature of many PAs in the developing world (Colchester 2004; Dowie 2005).[25] In the Congo basin, for example, the creation of national parks has awakened concern about the rights of indigenous hunters, amidst fears of evictions (Nelson 2003), and the issue of the rights of indigenous people in several Ethiopian parks remains hotly disputed, even if the case of the Central Kalahari Game Reserve in Botswana has been resolved.[26]

Analysis of the social dimensions of conservation has begun to develop rapidly in recent years. Anthropologists in particular have made significant strides in explaining the nature of knowledge and power to conservation planners (e.g. Brosius 1999a, 2006b). However, the debate between conservation and much social and cultural anthropology, like that with political science and indeed the social sciences more generally, is too often still a dialogue of the deaf (Agrawal and Ostrom 2006). Like environmental anthropology, the emphasis of political ecology on the links between political economy and the actual state of the environment (Page 2003; Walker 2005) offers some potential to open dialogue between social science-trained critics of conservation and natural science-trained advocates. Communication across that divide is critical if policy is to be made equitable and effective, and if conservationists and their critics are ever to join forces to address, explain and engage the structures and processes driving the social and environmental changes they regard as deleterious. Conservation biologists increasingly recognise the need to address questions of the survival of non-human nature in landscapes substantially dominated by human projects (Western 1989; Robinson 2006; Sarukhán 2006) and are being urged to seek to break down their traditional conceptual distinctions between humans and nature (Folke 2006). Such ideas offer some promise of a future for conservation planning that moves beyond exclusion to imagine a conceptual and material place for human society within, and not outside, nature.

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## Notes

1. http://www.africanparks-conservation.com/ (15 November 2005).
2. Refugees International (http://www.refugeesinternational.org/) and Survival International http://survival-international.org/. See also http://www.iucn.org/themes/ceesp/alert.htm (29 November 2005).
3. http://www.survival-international.org/news.php?id=2128, accessed 14 December 2006. The identity 'bushmen' is highly complex (Suzman 2000).
4. There is no universal term for the things that conservationists wish to protect. In this paper 'nature' is used to refer to all non-human life and the physical contexts in which they exist. The term 'biodiversity' is widely used but problematic (Takacs 1996), as is the term 'wildlife'.
5. http://www.africanparks-conservation.com/peopleparks_localprotect.html (31 October 2005).
6. Leading this exploration is the Social Science Working Group of the Society for Conservation Biology, www.conbio.org/workinggroups/SSWG/Activities.CFM (8 January 2007).
7. In this paper the terms 'parks', 'protected areas' and the acronym 'PAs' are used interchangeably to refer to the whole range of protected areas which suit the flow of language. 'National parks' refer specifically to IUCN Category 2 protected areas, or lands described in this way by national legislation that fit other categories.

8. www.iucn.org/themes/wcpa (28 November 2005).
9. www.wcmc.org.uk/protected_areas/data/cnppa.html (28 November 2005).
10. http://www.iucn.org/themes/wcpa/theme/categories/what.html (24 July 2007). The categories were reviewed at a summit in May 2007, http://www.iucn.org/themes/wcpa/theme/categories/summit/summit.html (24 July 2007).
11. Rhys Williams to the Secretary of State for the Colonies, 9 June 1906, *Journal of the Society for the Preservation of the Wild Fauna of the Empire* 3: 14-19 (p. 15).
12. http://www.nationalparks.nsw.gov.au/npws.nsf/content/media_260404_royal (12 July 2007).
13. See the World Bank's 2004 Operation Policy 4.12: http://wbln0018.worldbank.org/Institutional/Manuals/OpManual.nsf/0/CA2D01A4D1BDF58085256B19008197F6?OpenDocument#foot (2 November 2005).
14. www.africa-rainforest.org/expeditions.html, 24 October 2004.
15. http://www.legislation.qld.gov.au/Bills/52PDF/2007/CapeYorkPHB07.pdf (23 July 2007).
16. http://www.tilcepa.org/ (23 November 2005).
17. World Parks Congress recommendation V.17, see www.iucn.org/themes/wcpa/wpc2003/english/outputs/durban.htm#daa (23 November 2005).
18. www.developmentgoals.org and www.worldbank.org/poverty/strategies/index.htm.
19. http://www.undp.org/equatorinitiative/ (25 November 2005).
20. Text of the statement available at: http://www.biodiv.org/programmes/outreach/press/default.aspx. The five biodiversity-related conventions are The Convention on Biological Diversity (CBD); the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); the Convention on the Conservation of Migratory Species of Wild Animals (CMS, or the Bonn Convention) Convention on Wetlands (popularly known as the Ramsar Convention); the World Heritage Convention (WHC). They have a joint website at: http://www.biodiv.org/cooperation/joint.shtml (25 November 2005).
21. MDG Indicator 26: http://unstats.un.org/unsd/mi/mi_goals.asp (18 November 2005).
22. The Convention on Biological diversity COP VII 2004 (Kuala Lumpur). Decision VII/28 on Protected areas**,** paragraph 22 notes 'that the establishment, management and monitoring of protected areas should take place with the full and effective participation of, and full respect for the rights of, indigenous and local communities consistent with national law and applicable international obligations'. Source: http://www.biodiv.org/decisions/default.aspx?m=COP-07&id=7765&lg=0 (28 November 2005).
23. See www.conservationrefugees.org/threatened.html (26 July 2006). See also sources at: www.iucn.org/themes/ceesp/alert.htm (11 August 2006).
24. See: http://survival-international.org/news.php?id=943 (25 November 2005).
25. IUCN's 'Theme on Indigenous and Local Communities, Equity, and Protected Areas' (TILCEPA), led discussion of communities, equity and protected areas at the Durban Congress in 2003, and continues to seek to open up debate on these issues http://www.tilcepa.org/ (23 November 2005).
26. For information on Ethiopia see http://www.iucn.org/themes/ceesp/alert.htm (29 November 2005).

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