

3 Rethinking maps from a more-than-human perspective

Nature–society, mapping and conservation territories

Leila Harris

Department of Geography, University of Wisconsin-Madison¹

Helen Hazen

Department of Geography, Macalester College, St. Paul

Introduction

Maps are not simply representations of particular contexts, places, and times. They are mobile subjects, infused with meaning through contested, complex, intertextual and interrelated sets of socio-spatial practices.

(Del Casino and Hanna 2005: 36)

Maps are of-the-moment, brought into being through practices (embodied, social, technical), *always* remade every time they are engaged with; mapping is a process of constant reterritorialization. As such, maps are transitory and fleeting, being contingent, relational and context-dependent. Maps are practices—they are always *mappings*, spatial practices enacted to solve relational problems . . .

(Kitchin and Dodge 2007: 335)

This chapter interrogates the power dynamics of mapping practice and products from a more-than-human perspective. Specifically, we consider what is at stake in defining and mapping protected areas for conservation. We combine literatures related to critical cartographies, political ecology, and nature–society debates to shed light on the ways that conservation-mapping practices endorse certain notions of species, space, and territory—with profound implications for the ways that nature conservation is perceived and operationalized. We also turn to recent insights related to practices and engagements with “map spaces” (rather than reading maps as fixed representations of space) to consider conservation-mapping practices as dynamic, performative, interactions among people, landscapes, ecosystems, and species. We argue that a focus on map spaces and practices provides useful ways forward for recent debates related

Rethinking maps from a more-than-human perspective 51

to nature–society and more-than-human geographies. In turn, considering the more-than-human reveals further fruitful lines of enquiry related to critical cartographies and power effects of mapping.

Recently, there has been considerable attention to retheorizing maps; less as product, and more as practice (this volume; Del Casino and Hanna 2005). For instance, Kitchin and Dodge (2007) explain that cartography should be understood as processual, rather than representational. Questioning the ontological status of maps, they argue that maps are never fully formed, never complete, and are always brought into being through specific context-dependent practices and relations. As part of this refocus on processual cartographies they suggest that key insights are possible by analysing the ways that lines and colours *become* maps, are given meaning, and are performed in relation to specific knowledges or techniques, or through relational engagements involving mapmakers or users. For instance, what are the technological or social codes that are cited and signified in ways that allow a reader to interpret and engage with the image as a map? What are the consequences and socio-spatial interactions that unfold in interpreting and engaging with the map? Similarly, Del Casino and Hanna (2005) write of the need to rethink mapping to consider multiple ways that maps are engaged and performed, particularly by map users. Rather than analysing the map and its silences, or the power-knowledge dynamics at play that led to the creation and production of particular maps (e.g. imperialism, state mapping, or other power dynamics that might result in the production of maps; cf. Harley 1988, 1997), these authors argue that it is imperative to analyse the multiple, reiterative production and reproduction of maps as they are engaged in multiple times and spaces. Central to this rethinking, they highlight the need to overcome key dichotomies common to cartographic literatures, such as those of map user/maker, or representation/space.

The last decade of geographic scholarship has also witnessed a proliferation of discussions related to “animal geographies,” and linked efforts to rethink human relationships to non-human or “more-than-human” natures (Braun 2005; Philo 1995; Philo and Wilbert 2000; Whatmore 2002, 2006; Wolch and Emel 1995, 1998). The term “more than human” is meant to move beyond the negative terminology of “non-human,” and suggests the need for our interest, attention, and commitment to reach beyond an exclusive focus on the human world.² Lynn (2004) defines the term as also referring to human issues (e.g. environmental justice), while maintaining an appreciation for the theoretical and empirical linkages among animal, environmental, and human affairs. As examples of such concerns, theorists have analysed spaces that are thought to be appropriate for diverse non-human animals, and the ways that particular spaces are defined in relation to non-human “others”; for example, policy and practice related to urban farming (Blecha 2007), acts of enclosure related to zoos or modern industrial agriculture (Watts 2000, 2004), or conceptualizations of “pests” in racialized urban spaces (Biehler

52 *Leila Harris and Helen Hazen*

2007). These discussions touch on the ethical considerations of bounding and limiting animal spaces, and also make the case that social theory can benefit by paying greater attention to diverse non-human natures in discussions of power and socio-spatial interactions.

Our interest here is to combine insights related to critical cartographies of conservation with geographic discussions related to the more-than-human to analyse what these approaches together suggest for a critical reading of the common practice of “mapping for conservation.” We therefore provide overviews of recent work in each of these literatures before considering how work at their intersection can serve to identify and challenge inequalities and inconsistencies in contemporary conservation practice. Given the important role of mapping in designating areas for conservation, and the resulting implications in terms of designating appropriate spaces for certain human activities and non-human species, what might a more explicit focus on mapping products *and* practices lend to these discussions? In particular, how might the processual turn in critical cartography enrich understandings of reiterative mappings, reterritorializations, and socio-spatial practices related to more-than-human geographies? In the conclusion, we also briefly address what more-than-human geographies might add to discussions of map spaces and performativities.

We use the terms “mapping for conservation” and “conservation cartographies” interchangeably to highlight a complex of interrelated spatial and territorial strategies common to contemporary conservation practice. These include: the designation of geographical areas as relevant for conservation, the delimitation of practices that are considered to be appropriate with respect to those areas, and cartographic representation and replication of those associations. Certainly, mapping for conservation also incorporates more than this, for instance habitat or species distribution mapping, or biodiversity assessments. However, this discussion relates most directly to the mapping, designation, and bounding of territorial conservation areas, such as parks or nature reserves. The explicit linking of conservation goals to specific territories is a practice that finds expression in an expanding map of protected areas (Harris and Hazen 2006; Naughton-Treves *et al.* 2005; Zimmerer *et al.* 2004), which today cover over 8 percent of the world’s terrestrial surface (WDPA 2006), even by conservative estimates. As Woodley (1997: 11) suggests, the designation of protected areas has become ‘the most common human response to human induced ecosystem degradation.’

Highlighting these connections, our key argument is that the relational or processual turn in cartography reveals important dimensions of power effects and dynamics of conservation mappings, offering key insights to nature–society debates in geography. We read conservation maps as practices that remake knowledges and truths related to the more-than-human world, reiteratively revisiting and cementing particular notions of what nature and conservation is, and what it should be.

The processual turn in critical cartography

There has been an increasing recognition that the image of the world can never fully represent the world, because the process of representing is itself part of the world being represented.

(Perkins 2006: 556)

Kitchin and Dodge (2007) and Del Casino and Hanna (2005) are authors whose contributions are central to understanding what we refer to here as the “processual turn” in critical cartography. Among other points, these authors argue that we should not think of maps as “things” with ontological certainty. Rather, it is more useful to think of the relationships that unfold as maps are created, the meanings that are cited in selection of particular technologies or representational techniques by mapmakers, or as maps are engaged by users. Such an approach refuses to think of maps as static, or fixed, in terms of their meanings. Along these lines, Kitchin and Dodge (2007: 331) ask ‘what are the citational practices that are invoked by cartographers to produce something we recognize as a map?’ Attention to this type of question, they argue, forces us to interrogate fundamental issues: What is a map? How do we recognize a map when we see it? What are the citational cues a mapmaker might invoke to sediment a particular notion of a map (drawing on a particular technological and aesthetic repertoire to produce something recognizable as such)? Not only are there key relationships that are engaged in the process of map production, but even once produced the map still does not exist in a stable, or ontologically-given, sense.

The approach these authors offer builds on earlier work that understands mapping as power-laden (per the work of Harley 1997; see also Crampton 2001; Pickles 1995). Elsewhere, we have applied insights from these discussions of the ‘power of maps’ to evaluate conservation cartographies: What are the relevant power dynamics and asymmetries with respect to how conservation maps are drawn, by whom, and for what ends? (cf. Harris and Hazen 2006). Although this remains a solid foundation for our avenues of enquiry here, we consider that recent discussions related to critical cartographies force us to extend this type of analysis to acknowledge that maps are never stable, never fixed, and are constantly open to reinterpretation, and assignment of shifting meanings. Furthermore, if we break down clear separations between mapmakers and map users, we also need to be attentive to what this implies in terms of understanding power dimensions and effects of maps. In brief, we read these recent interventions as consistent with an interest in the power effects of mappings, but requiring that we deflect analytical attention away from the *intent* of the mapmaker (à la Harley) to instead consider the multiple, diffuse, and unpredictable ways that mapping practices and products are engaged and “remade.” Among other elements of the ways that these contributions revise our interest in power of maps is attention to the ways that maps are read and invested with meaning in particular

54 *Leila Harris and Helen Hazen*

times and spaces. What is the power of the conservation map in terms of its representational and effective power, and how do diverse interpretations and power effects shift over time and across space? For example, how might conservation mappings and spaces in the global South be invested with different meanings from those in Northern contexts? Or how might conservation spaces and mappings hold particular meaning in relation to changing political and economic contexts? This reorientation builds on Pickles' interest in maps as "multivocal and contested," rejecting a singular notion of "truth" that can be uncovered by exposing ideological intent of the map's production (Kitchin and Dodge 2007: 333).

To clarify the implications of recent discussions for our reading of conservation mapping, it is worth providing more detail on this retheorization of maps associated with the processual turn. For instance, Del Casino and Hanna (2005) are particularly interested in the ways that spaces serve to condition map uses or meanings and, in turn, the ways that mappings may alter one's experience of space. In sum, they highlight spatio-temporalities of mapping as reiterative, co-constitutive and, indeed, power-laden. Del Casino and Hanna (2005: 44) argue that:

Maps that people simultaneously make and use mediate their experience of space. People's bodily practices of walking, driving, touching, smelling, and gazing, as well as their understandings of landscapes and spaces can be guided and informed by maps and by the innumerable intertextual and experiential references always present in any map. At the same time, spaces mediate people's experiences of maps . . . our theorization therefore does not prioritise writing over reading or production over consumption in the constant recreation of the map space. Nor do we wish to argue that map spaces as representation are separable from map spaces as practiced, worked or performed.

This further clarifies how mappings can be power-laden beyond the intent or interest of the mapmaker. Instead, mapping products and practices are power-laden in serving to guide peoples' understandings and experiences of space and, in turn, spaces can serve to condition and render one's experience of a map. Therefore, we need to think of mapping practices as key aspects of socio-spatial dynamics and relations, whether socio-spatial exclusions, power relations, or differentiated experiences of spaces and places relevant for the more-than-human realm.

Highlighting power as key to their theorization, Del Casino and Hanna reference the work of Judith Butler to detail the "performative effects of maps." Reading maps and mappings as performative draws attention to the reiterative processes through which map meanings and effects are constantly remade. This analytic necessarily also draws attention to the ways that relations *appear* as stable or natural, even as they are constantly unfixing and remade. For instance, even if a map is "remade" with each reading, use, or

Rethinking maps from a more-than-human perspective 55

engagement, there are still ways in which maps appear to cement or stabilize particular socio-spatial relations. This is consistent with discussions of maps in terms of their tendency to convey certainty and control, provide reassurance, or cement particular power dynamics (e.g. Perkins 2006). Particularly through the ubiquity of maps that allows them to appear so commonplace, everyday, and *apolitical*, there are key ways in which socio-spatial relations may appear as natural and stable, as effects of reiterative citation, even as the maps themselves, or their power effects, are not pre-certain, given, or fixed.

Taken together, we read recent contributions in critical cartography as refocusing and extending an interest in power dimensions of mapping. How might maps serve to naturalize certain relations—relations of power, particular political economic relations, or territorial partitioning—particularly given that maps are so authoritative, so everyday, and seemingly *apolitical*? Given that maps are reproduced in diverse spaces and times, how does attention to the spatiality and temporality of map production, uses, and engagements affect the condition and effects of particular maps and mapping practices? Further, how are maps central to understanding uses and experiences of space (again, particularly given their ubiquity, everydayness, and seemingly *apolitical* character)? Applied to the conservation context, in particular, how might mapping for conservation have power effects in terms of consolidating particular nature–society relations, and demarcating (in)appropriate spaces and relations for human:more-than-human interactions, even if these effects are not pre-given or fixed?

More-than-human perspectives and animal geographies

To adequately read conservation cartographies in this way also points to the need to extend common theorizations of power, enlivening an eco-social theorization of power that incorporates inequalities in inter-species and non-human senses.³ Non-human animals are rarely considered within the realms of social theory (Wolch and Emel 1995, 1998), and yet Philo (1995: 655) argues that animals can be regarded as a ‘marginal “social” group’ that is ‘subjected to all manner of socio-spatial inclusions and exclusions.’ Consider, for instance, that many non-human species or dimensions of “life” itself are now frequently represented as ‘natural resources’ (Whatmore 2006: 605), generating clear messages of consumption for human:non-human relationships. As we will detail, just as performativities of conservation mappings are necessarily linked to power relations that privilege certain social groups over others, similar hierarchies of values operate to privilege some species or non-living natures over others. For instance, charismatic species such as the panda are commonly used to mobilize funding and generate environmental concern (Lorimer 2007), and particularly biodiverse habitats such as rainforests are frequently seen as more significant conservation targets than are grasslands or other less spectacular landscapes (Hazen and Anthamatten 2004). How

56 Leila Harris and Helen Hazen

might we take these sorts of issue seriously in evaluating the performative and power effects of conservation mappings?

Attention to power effects of conservation mappings in eco-social senses also raises key questions related to modes of representation, in science and politics, of human and non-human (Braun and Castree 1998; Whatmore 2002). It becomes necessary to interrogate how the very notions of human:non-human are represented and articulated, and to what effects (Haraway 1991). These new “more-than-human” modes of enquiry ‘neither presume that socio-material change is an exclusively human achievement nor exclude the “human” from the stuff of fabrication’ (Whatmore 2006: 604). As populations or planners variously and reiteratively engage with conservation maps (in literal and metaphorical senses), how do such engagements cite, reconsider, challenge, or reify particular power relations between humans and non-human “others”, solidify certain spaces as appropriate for particular species, or generate notions of “desirable” species that we seek to conserve? All of these types of questions illustrate the productive analytical space that is opened up by combining recent debates in critical cartography with animal geographies. It is to this analytical terrain, and to the particular concern of “conservation mappings” that is so central to these negotiations, that we now turn.

Critical cartographies and conservation geographies

Many conservation practices use mapping techniques and products. In particular, most contemporary conservation efforts rely on the designation of particular territories for conservation, resulting in complex mappings of spaces deemed appropriate, or inappropriate, for particular activities and human–nature relations. Most obviously, protected areas define areas where human activities are generally abstracted from, and secondary to, the needs of wildlife, although more recent notions such as buffer zones and mixed-use areas have complicated such simplistic separations of the human and non-human. As we have argued elsewhere (Harris and Hazen 2006; Hazen and Harris 2007), the designation of certain geographic areas for conservation, and reliance on mapping products and practice to do so, has several notable effects, including:

- a solidifying a notion that humans and non-human others are, and should be, separate (see also Fall 2002);
- b privileging those voices and perspectives that have access and expertise related to Western cartographic approaches and GIScience in conservation debates (see also Goldman 2003; Robbins 2003);
- c favouring those spaces, ecosystems, and natures that may be “more mappable” for protection over other areas (e.g. the fact that grasslands and marine areas are less definable in cartographic terms than forests and islands may help to explain why these features are relatively less well represented in protected areas);

Rethinking maps from a more-than-human perspective 57

- d cementing an overly-limited territorial approach to conservation, in ways that potentially sideline non-territorial approaches; and
- e consolidating an overly-fixed and static approach to conservation, rather than enabling approaches that might be more seasonal, fluid, or appropriate for shifting and evolving ecological conditions and needs (see also Clapp 2004; Natter and Zierhofer 2002; Zimmerer 2000 for discussion of these issues).

As we have elaborated these issues elsewhere, here we simply offer a few examples to re-examine these connections in light of the theoretical interventions noted above.

Performative effects of conservation maps

Just as other theorists have considered the performative effects of maps in producing nationalist sentiment, or consolidating state boundaries in ways that allow them to appear natural, given, or ahistorical (e.g. Edney 1997; Radcliffe and Westwood 1996; Winichakul 1994), it is clear that mapping particular areas for conservation has similar additional productive effects. Here it is important to clarify that we engage notions of performativity (following Butler 1990, 1993) in a way that is distinct from certain other discussions of performative mapping (e.g. discussions related to dancing or singing of spatial relationships, or ways that mapping relates to other cultural performance; for instance, see Perkins 2006: 565 discussion of ‘acting out the map’). Instead, we draw on notions of performativity from Butler as described in the introduction above. In this theorization, maps are never fixed or stable, but are reiteratively engaged, with particular effects. Butler’s idea of performativity also draws centrally on the idea of power effects as these reiterative engagements and performances are necessarily understood as linked to power dynamics, whether particular performances are “compelled,” or help produce, certain stabilities and fixities of meaning (Butler 1990, 1993). Applied to conservation mapping, performativity helps underscore additional ways that maps may naturalize contingent links between spaces and territories, and constellations of human–environment relations generally. Though not engaging the same use of the term, this discussion reveals features of what Harley (1988: 59) refers to in relation to the silences of maps as “active performances” in terms of their ‘social and political impact and their effect on consciousness.’ Drawing on this theorization, we see key ways in which conservation mappings can be read as reiterative performances that cite meaning and, in so doing, serve to consolidate particular power effects vis-à-vis non-human and animal geographies.

Static, fixed, and inflexible associations

Perhaps foremost among the performative effects of mapping for conservation practice is the tendency for map forms to provide static and fixed associations. Just as reading a world political map may give a reader the sense that certain

58 *Leila Harris and Helen Hazen*

political boundaries exist in ways that effectively erase dynamism inherent to the state system, maps may also provide snapshots of associations between ecosystem needs, species, and specific territories, despite tremendous flux and dynamism (both in terms of human-ecological systems and with respect to shifting scientific understandings). This is precisely what leads Clapp (unpublished mimeo) to note that conservation territories are a 'blunt instrument unsuited for dealing with the natural world, characterized less by stability than flux in time and space.' As Zimmerer (2000) argues, despite a shift towards non-equilibrium ecological understandings, many conservation principles continue to rely heavily on spatial parameters that 'are premised almost entirely on equilibrium assumptions about the nature of environments' (p. 356). His critique of conservation areas 'that apply, in rigid style, the ecological precepts of stable spatial boundaries, single scales, and the regular temporal quality of environments' (Zimmerer 2000: 357), is one that we share. Although creating fixed spaces of conservation may be sensible from the viewpoint of limiting uses of habitats that threaten certain species, all too often protected areas are taken as inviolable or fixed in space and time in ways that are fundamentally inconsistent with changing ecologies and species requirements. In terms of engendering fixity in terms of which areas or species should be protected, taking a more performative approach to mapping effects is illustrative. Consider, for instance, the example offered by Vandergeest (1996) in which mapped locations over time came to legally define "forests" for state agencies in Thailand, regardless of the actual vegetation in those spaces. This offers a powerful example of ways that maps can take on importance in and of themselves, potentially cementing fixed territorial associations, even if they have little bearing on ecological conditions or conservation requirements. Noting that spatio-temporal fixity of conservation areas is problematic is not to imply that conservation practitioners simplistically assume that specified boundaries remain effective over long time frames (see, for instance, Newmark 1995; Noss 2001; Shafer 1999) or that conservation territories are undesirable, but rather that their limitations should be understood. Further discussion of such challenges is clearly warranted.

A fundamental point we distil here is that mapping practices and products tend to cement inflexibility, making more flexible conservation approaches less visible and less likely. Related to this concern, conservation mappings may also reinforce the impression that conservation has *already* happened and is successful. The use of the past tense in the term "protected area" may be particularly significant in this regard, engendering a (false?) sense of security that conservation *has occurred* and is effective. The notion of "paper parks"—spaces protected in name but not in practice—is a clear example of this possibility. For instance, Cropper *et al.* (2001) found that in Thailand, although 10 percent of land is defined as "protected," the protection status of the land bears no statistically significant relationship to rates of forest clearing. Considerable recent evidence from biophysical and conservation literatures stress a wide range of extra-territorial threats to conservation spaces,

Rethinking maps from a more-than-human perspective 59

including air and water pollution, climate change, and even water withdrawals, such as at the Everglades in the U.S. Simply put, designating an area as “protected” (in the past tense) and mapping it as such serves to cite links between species health and geographical territories in particular ways, often masking other extra-territorial and long-term threats to ecosystem health. Thus, although mapping conservation spaces may reiteratively cite the territorial basis for species and ecosystem health (causing other necessary links or threats to fade from view), the product and practice of conservation mapping may also overly-fix strategies for dealing with conservation (sidelining more flexible approaches), and even engender a sense of security that protected areas are successful (and that conservation has happened), potentially rendering other possible approaches less likely.

Mapping “Others”

One basic idea that frequently underwrites conservation mappings is that “animal geographies” can be mapped as separable “Others,” cementing the idea that non-human species do not belong in urban, ex-urban, or even rural spaces unless they are set-aside as “wilderness” spaces. In this way, conservation maps cite and affirm particular roles and spaces for humans and non-humans, furthering the idea that there can, and should be, neat and separable boundaries between them. Spaces outside of conservation areas are also important in this regard, as mapping areas for conservation may serve to justify intensified use and degradation of spaces outside of park boundaries (Zimmerer 2000). In this context, the reiterative power effects of conservation mappings can be read as consolidating certain landscapes and spaces of over-use, in contradistinction from spaces where nature conservation is prioritized, indicating as much about what occurs *outside* conservation spaces as *within* them. This notion of people and nature as separate is precisely what recent efforts attempting to re-integrate local populations in conservation spaces are attempting to overcome (e.g. Naughton-Treves *et al.* 2005).

As we have argued elsewhere, the idea that conservation goals can be achieved by setting aside spatially limited, biodiverse territories—the so-called “hotspots” approach—has become popular, partly because it may appear as more politically and economically feasible than more extensive conservation techniques (Harris and Hazen 2006; Hazen and Harris 2007). This is the case even as critiques suggest that the hotspots approach may not be sustainable in the long term, nor as effective as other strategies (see Kareiva and Marvier 2003 for critique of the hotspots concept). Hotspot conservation is perhaps an extreme example, but many practices and products of conservation mapping encourage conservation approaches that target limited geographical areas at the expense of other strategies. Returning to points made in the introductory section, there are often scalar or territorial references to administrative units, such as states, among citational practices that create maps. These underlying divisions, whether implicit or explicit, can condition

60 *Leila Harris and Helen Hazen*

subsequent mappings through influencing our expectations for what scale and extent is appropriate for particular conservation practices. For instance, the mapping of protected areas or nature preserves often happens at scales determined by administrative units and boundaries, even if these scales may be less appropriate to ecological or functional processes.

The limited territorial approach that mapping practices often implicitly endorse is particularly risky given the increasing acknowledgment that many species may not persist unless there are regional-, or even continental-, scale approaches to ensure their survival (e.g. Groves *et al.* 2000; Ricketts *et al.* 1999). For example, a report on grizzly bear conservation efforts in Yellowstone concluded that recovery of the park's bear population cannot occur in isolation from conditions throughout the continental U.S. (Willcox and Ellenberger 2000). Such examples offer explicit recognition that protected areas are typically too small and isolated to accommodate the needed movements and changes required by many species.

These insights reveal that conservation mappings may reiteratively produce an association between conservation and territory in a general sense, and conservation and particular scales of "nature" more specifically. However, conservation efforts may be appropriate at multiple scales, including not only the regional or even global scales, but perhaps also the molecular or genetic scale (a topic of increasing interest in nature–society geography and science studies—as evidence for this possibility Watts (2004) is one of several scholars who highlight the gene as central to the "modern map of nature").

Power effects of conservation boundaries: Shaping how humans and more-than-human communities experience space

We have discussed ways that conservation maps may consolidate overly fixed borders, in ways that might even undermine important ecological functions. Related to this, conservation maps play important roles in conditioning experiences of space, for humans and non-humans alike. For instance, the bison of Yellowstone experienced a particularly harsh winter in 2007–8; in response, many animals strayed outside the park boundary. Park authorities often slaughter bison that leave the park to prevent the spread of brucellosis to surrounding herds of cattle. This year the number of bison killed reached a new high—one-quarter of the park population—generating an outcry from critics of the current management system (Robbins 2008; see also Lavigne 2002 for general discussion of this issue). This example makes it clear that non-humans experience space in particular ways given the "mapped" park boundary, even as this boundary had no material expression "on the ground." The consequence of the bison transgressing the invisible mapped boundary of the park is especially severe, affecting the bison not only individually but also in terms of the genetic viability of the herd.

The symbolic significance of the bison, both for the U.S. West and for Native American tribes, also reveals some of the performative effects of

Rethinking maps from a more-than-human perspective 61

conservation mappings. With each transgression of the bison over the border of the park, and with each individual brought to slaughter, each individual shifts from being “protected species” to “threat to political economic interests,” and is resignified as “expendable” or “consumable.” The performative effects of the map also invoke meanings and history related to the repeated loss of Native American livelihoods (re-enacted with each transgression of the map space and associated slaughter), and even notions of loss of pristine nature that have been central to the American imagination (Cronon 1995). Indeed, the effects of the map, given the contemporary political economic landscape (notably cattle grazing), reiteratively cite and perform each of these associations, histories, and nature–society relationships. Each transgression of the bison brings new meaning to the “map space” and power effects of the Yellowstone Park map, adding a compelling addition to our understanding of the stakes and consequences of “map spaces” for human and non-human relations and futures alike.

To provide another example of the ways that maps are performatively engaged in relation to space, consolidating particular understandings and uses of spaces, consider the production and replication of “protected areas” on print maps. A tourist looking at such a map may consider seeking out such spaces to have a “wilderness experience,” or indeed may avoid such areas assuming that there will be nothing of interest for them. Thus, the map influences not only the map user’s experience of space (as per Del Casino and Hanna’s 2005 argument), but also alters patterns of mobility. Consider also how walking through an area demarcated as “wilderness” on a map might elicit a more (or, indeed, less) satisfying “nature” experience as a result of expectations set by the map (again, with particular connotations in relation to particular cultural constructions of wilderness—see Cronon 1995). At a more abstract level, the production and dissemination of such maps could have the effect of affirming a basic idea that humans and non-human nature are, and should be, separate. Combined with other evidence of social exclusions related to protected-areas mappings (e.g. Goldman 2003; Peluso 1993), as well as biophysical evaluations of differential protection afforded to different ecosystems (Hazen and Anthamatten 2004), it is clear that protected areas are designated, mapped, and managed according to shifting notions of appropriate or desirable nature, as well as the priorities that societies, or certain subsets of society, deem to be important. Further, as Robbins (2001) has shown, remotely-sensed images, or any map of “nature,” may be interpreted differently by users according to pre-existing notions or categories, further demonstrating the socio-spatial effects of conservation mappings.

Other performative effects: Social consciousness, erasure, and nature–society divides/inequalities

There are also clear ways that conservation maps can affect social and political consciousness by consolidating identities around environmentalism,

62 *Leila Harris and Helen Hazen*

nationalism, or wise-use movements. For instance, work in the U.S. context has highlighted the role of national parks in fuelling nationalist sentiment; with large parks fostering pride or facilitating belonging related to notions of “Americanness” (Hazen 2008). At another extreme, the mapping of a specific area as “protected” may fuel opposition to such practices, giving “wise-use” or similar movements ammunition for rejecting such examples of “government intrusion” that render land unavailable for local people (see McCarthy 2002 for discussion of this movement). The more classic example, perhaps, is that of mapping conservation spaces that promote ideals of “wilderness” in ways that erase complex histories of human settlement to comply with certain visions of pristine and uninhabited nature (as with the removal of Native American communities at Yellowstone National Park (cf. Spence 1999) or the clearing of pioneer settlements at Smoky Mountains National Park [see also Cronon 1995]). Ironically, even as parks of this type help to perpetuate the idea of people and nature as separate, once mapped in this way, many areas commonly associated with nature such as Niagara Falls and Yosemite actually undergo considerable human management and intervention to comply with idealized notions of wilderness or pristine nature.

As a final example along these lines, it is also worth highlighting the performative effects of maps in terms of the relative mappability of particular features or land areas. Given technological considerations, certain areas can be considered more “mappable” than others, and may as a result be privileged for conservation designation. Consider, for instance, that grasslands are not only considered less “majestic” than other landscapes (see Cronon 1995) but are also less definable in carto-geographic terms than, for example, lakes or islands, and may therefore be relatively neglected by conservation designations. The preference for the protection of forest over dryland and grassland ecosystems that can be seen at the global scale (Hazen and Anthamatten 2004) may also be, in part, a reflection of the fact that forests are often a “mapped” feature, whereas grasslands and drylands are invisible on all but the most specialized of maps.⁴ This issue, again, reveals the reiterative and performative effects of mapping products and technologies in terms of producing particular landscapes and spaces deemed appropriate, or necessary for, protection. It is also of interest that many features of critical importance to the success of protected areas are “unmappable” in these terms (for example social and political infrastructure), and thus may be neglected in a political climate that overemphasizes what can be achieved with innovative technological tools or limited territorial set-asides.

Conclusions

Given the limitations of many common conservation-mapping practices—whether disregarding local knowledges or needs, fostering inflexible approaches that ignore changing conditions, or encouraging notions of conservation that justify separation between humans and nature—it is clear

Rethinking maps from a more-than-human perspective 63

that there is compelling need for conservation cartographies to be debated, retooled, and remapped. Elsewhere, we outline practices and suggestions that offer some promise or partial solutions to the issues and challenges raised above, varying from ways to adapt the form and function of protected areas, to more fundamental rethinking of conservation spaces (Harris and Hazen 2006; Hazen and Harris 2007).

Here, we provide further examples of the ways that mapping practice and products may consolidate particular nature–society relations, potentially circumscribing a range of alternate futures that may be imaginable from a more-than-human perspective. Among the most important elements of the ways that mapping potentially limits and consolidates particular nature–society relations over others, we consider that mapping consolidates an *overly-fixed*, and relatively *inflexible*, range of possibilities with respect to animal spaces and futures. For instance, designating certain territories as “conservation areas,” and enabling continued use and degradation outside of park boundaries, considerably limits future flexibility with respect to altering or extending protected-area boundaries or adjusting them in accordance with seasonal or long-term needs and requirements.

Understanding mapping as a common technology of conservation practice allows for more explicit interrogation of the spatial and territorial underpinnings of conservation, as well as the limitations of common conservation mappings. The fundamental point that can be distilled from all of these divergent debates is that conservation maps, as any maps, are necessarily reflective of, and productive of, power. Just as we consider that attention to the processual turn in cartography lends considerable insights for an enriched understanding of the reiterative and performative effects of conservation mappings (with important implications for more-than-human possibilities and futures), we consider that critical cartographic discussions may also benefit from attention to the more-than-human world. It is not only the case, as other authors have noted, that engaging with maps may influence our sense of place, or help to guide our experience of spaces (Del Casino and Hanna 2000, 2005). This is certainly true. However, there are also considerable power effects that are revealed through explicit attention to the “experiences” of non-human others, as their use of space is conditioned, and circumscribed, by conservation mappings. Indeed, in many cases, the very survival of individuals or entire species is fundamentally linked to ways that conservation maps are reiteratively engaged by diverse users in diverse contexts, with particular effects.

Mapping products and possibilities are central to the contemporary conservation toolkit. They also frame and limit the specific geographies and management opportunities possible in terms of how human and more-than-human worlds are inhabited and lived. We have found inspiration in recent debates related to critical cartography to revisit some of our ideas about the role and effects of particular conservation techniques, approaches, and products. We similarly think that debates about power in cartography would

64 *Leila Harris and Helen Hazen*

do well to pay attention to power in its many diverse manifestations, human and more-than-human alike.

Notes

- 1 We are grateful to *ACME: International E-journal for Critical Geographies and Environmental Conservation* (Cambridge Journals) for allowing us to reproduce elements of earlier publications here. The full citations for those publications are listed in the References below as Harris and Hazen (2006) and Hazen and Harris (2007). We are also grateful for the work of the editors of this volume for their patience and assistance.
- 2 We use non-human and more-than-human interchangeably throughout this piece, even as we share a commitment to the spirit of this project.
- 3 More eco-social understandings of power have been elaborated elsewhere. For example, Sneddon (2007) identifies a “failure” with respect to conceptualizations of power, highlighting the fact that questions of ecology, or the non-human, are infrequently broached in discussions of power. Interestingly, as our discussion of power of conservation mappings extends from territorial and spatial assumptions in conservation practices, understandings of power in human geography are also often theorized in spatial terms, for instance the territorial expression of state power, or spatio-temporal ordering and discipline central to Foucault’s (1982) understandings of governmentality and power/knowledge.
- 4 In a discussion related to some of the concerns of this paper, Vandergeest (1996) considers the mapping of forest areas as a critical step in the process whereby the Thai state asserted control over territory, people, and resources (eventually with the forestry department claiming control of nearly half of Thai national territory). Given such examples, it is clear that mapping practices are often central to the assertion of control and power (e.g. state power, see related discussions on surveillance in Foucault 1979 or on state legibility in Scott 1998). Further, it is suggestive that issues of control, surveillance, and resource access may be central to the determination of which features are preferentially mapped and protected.

References

- Biehler, D. (2007) *In the Crevices of the City: Public Health, Urban Housing, and the Creatures we Call Pests 1900–2000*. Unpublished PhD Thesis, Department of Geography, University of Wisconsin-Madison.
- Blecha, J. (2007) *Urban Life with Livestock: Performing Alternative Imaginaries Through Small-scale Urban Livestock Agriculture in the United States*. Unpublished PhD Thesis, Department of Geography, University of Minnesota.
- Braun, B. (2005) ‘Environmental issues: Writing a more-than-human urban geography’, *Progress in Human Geography*, 29: 635–50.
- Braun, B. and Castree, N. (1998) *Remaking Reality: Nature at the Millennium*, London: Routledge.
- Butler, J. (1990) *Gender Trouble: Feminism and the Subversion of Identity*, London: Routledge.
- Butler, J. (1993) *Bodies that Matter: On the Discursive Limits of “Sex”*, New York: Routledge.
- Clapp, R.A. (2004) ‘Wilderness ethics and political ecology: remapping the Great Bear Rainforest’, *Political Geography*, 23: 839–62.

Rethinking maps from a more-than-human perspective 65

- Crampton, J.W. (2001) 'Maps as social constructions: power, communication and visualization', *Progress in Human Geography*, 25: 253–60.
- Cronon, W. (1995) 'The trouble with wilderness: or, getting back to the wrong nature', in W. Cronon (ed.) *Uncommon Ground: Toward Reinventing Nature*, New York: W.W. Norton & Company.
- Cropper, M., Puri, J. and Griffiths, C. (2001) 'Predicting the location of deforestation: the role of roads and protected areas in Northern Thailand', *Land Economics*, 77: 172–86.
- Del Casino, V.J. and Hanna, S.P. (2000) 'Representations and identities in tourism map spaces', *Progress in Human Geography*, 24: 23–46.
- Del Casino, V.J. and Hanna, S.P. (2005) 'Beyond the "binaries": A methodological intervention for interrogating maps as representational practices', *ACME: An International E-Journal for Critical Geographies*, 4(1): 34–56.
- Edney, M. (1997) *Mapping an Empire: The Geographical Construction of British India, 1765–1843*, Chicago, IL: University of Chicago Press.
- Fall, J. (2002) 'Divide and rule: constructing human boundaries in "boundless nature"', *GeoJournal*, 58: 243–51.
- Foucault, M. (1979) *Discipline and Punish: The Birth of the Prison*, New York: Vintage Books.
- Foucault, M. (1982) 'Space, knowledge and power', in P. Rabinow (ed.) *The Foucault Reader*, New York: Pantheon.
- Goldman, M. (2003) 'Partitioned nature, privileged knowledge: community-based conservation in Tanzania', *Development and Change*, 34: 833–62.
- Groves, C., Valutis, L., Vosick, D., Neely, B., Wheaton, K., Touval, J. and Runnels, B. (2000) *Designing a Geography of Hope: A Practitioner's Handbook for Ecoregional Conservation Planning*, The Nature Conservancy, <<http://conserveonline.org/docs/2000/11/GOH2-v1.pdf>>.
- Haraway, D. (1991) *Simians, Cyborgs and Women: The Reinvention of Nature*, New York, Routledge.
- Harley, J.B. (1988) 'Silences and secrecy: the hidden agenda of cartography in early modern Europe', *Imago Mundi*, 40: 57–76.
- Harley, J.B. (1997) 'Deconstructing the map', in J. Agnew, D. Livingstone and A. Rogers (eds.) *Human Geography: An Essential Anthology*, Oxford: Basil Blackwell.
- Harris, L. and Hazen, H.D. (2006) 'Power of maps: (Counter)mapping for conservation', *ACME: International E-Journal for Critical Geographies*, 4: 99–130.
- Hazen, H.D. (2008) '"Of outstanding universal value": The role of the World Heritage Convention at national parks in the U.S.', *Geoforum*, 39: 252–64.
- Hazen, H.D. and Anthamatten, P.J. (2004) 'Representation of ecological regions by protected areas at the global scale', *Physical Geography*, 25: 499–512.
- Hazen, H.D. and Harris, L. (2007) 'Limits of territorially-focused conservation: a critical assessment based on cartographic and geographic approaches', *Environmental Conservation*, 34: 280–90.
- Kareiva, P. and Marvier, M. (2003) 'Conserving biodiversity coldspots', *American Scientist*, 91: 344–51.
- Kitchin, R. and Dodge, M. (2007) 'Rethinking maps', *Progress in Human Geography*, 31: 331–44.
- Lavigne, J. (2002) 'Where the buffalo roam: boundaries and the politics of scale in the Yellowstone region', *GeoJournal*, 58: 285–92.

66 *Leila Harris and Helen Hazen*

- Lorimer, J. (2007) 'Nonhuman charisma', *Environment and Planning D: Society and Space*, 25: 911–32.
- Lynn, W.S. (2004) 'Animals: a more-than-human world', in S. Harrison, S. Pile and N.J. Thrift (eds.) *Patterned Ground: Entanglements of Nature and Culture*, London: Reaktion Press.
- McCarthy, J. (2002) 'First world political ecology: lessons from the wise use movement', *Environment and Planning A*, 34: 1281–302.
- Natter, W. and Zierhofer, W. (2002) 'Political ecology, territoriality and scale', *GeoJournal*, 58: 225–31.
- Naughton-Treves, L., Holland, M.B. and Brandon, K. (2005) 'The role of protected areas in conserving biodiversity and sustaining local livelihoods', *Annual Review of Environmental Resources*, 30: 219–52.
- Newmark, W.D. (1995) 'Extinction of mammal populations in western North American national parks', *Conservation Biology*, 9: 512–26.
- Noss, R.F. (2001) 'Beyond Kyoto: forest management in a time of rapid climate change', *Conservation Biology*, 15: 578–90.
- Peluso, N. (1993) 'Coercing conservation? The politics of state resource control', *Global Environmental Change*, 3: 199–217.
- Perkins, C. (2006) 'Mapping', in I. Douglas, R. Huggett and C. Perkins (eds.) *Companion Encyclopedia of Geography*, London: Routledge.
- Philo, C. (1995) 'Animals, geography and the city: notes on inclusions and exclusions', *Environment and Planning D: Society and Space*, 13: 655–81.
- Philo, C. and Wilbert, C. (2000) *Animal Spaces, Beastly Places: New Geographies of Human–Animal Relations*, London: Routledge.
- Pickles, J. (1995) *Ground Truth*, New York: Guilford Press.
- Radcliffe, S. and Westwood, S. (1996) *Remaking the Nation: Place, Identity and Politics in Latin America*, London: Routledge.
- Ricketts, T.H., Dinerstein, E., Olson, D.M., Loucks, C.J., Eichbaum, W., DellaSala, D., Kavanagh, K., Hedao, P., Hurley, P.T., Carney, K.M., Abell, R. and Walters, S. (1999) *Terrestrial Ecoregions of North America: A Conservation Assessment*, Washington, DC: Island Press.
- Robbins, J. (2008) 'Anger over culling of Yellowstone's bison', *The New York Times*, March 23, <<http://www.nytimes.com/2008/03/23/us/23bison.html>>.
- Robbins, P. (2001) 'Fixed categories in a portable landscape: the causes and consequences of land-cover categorization', *Environment and Planning A*, 33: 161–79.
- Robbins, P. (2003) 'Beyond ground truth: GIS and environmental knowledge of herders, professional foresters and other traditional communities', *Human Ecology*, 31: 233–53.
- Scott, J.C. (1998) *Seeing Like a State*, New Haven, CT: Yale University Press.
- Shafer, C.L. (1999) 'National park and reserve planning to protect biological diversity: some basic elements', *Landscape and Urban Planning*, 44: 123–53.
- Sneddon, C. (2007) 'Nature's materiality and the circuitous paths of accumulation: dispossession of riverine fisheries in Cambodia', *Antipode*, 39: 167–93.
- Spence, M.D. (1999) *Dispossessing the Wilderness: Indian Removal and the Making of the National Parks*, New York: Oxford University Press.
- Vandergeest, P. (1996) 'Mapping nature: territorialization of forest rights in Thailand', *Society and Natural Resources*, 9: 159–75.

Rethinking maps from a more-than-human perspective 67

- Watts, M. (2000) 'Afterword: enclosure', in C. Philo and C. Wilbert (eds.) *Animal Spaces, Beastly Places: New Geographies of Human-animal Relations*, London: Routledge.
- Watts, M. (2004) 'Enclosure: a modern spatiality of nature', in P. Cloke, P. Crang and M. Goodwin (eds.) *Envisioning Human Geographies*, New York: Arnold.
- WDPA (2006) *Growth in Naturally Designated Protected Areas (1872–2006)*, World Data of Protected Areas, UNEP <http://www.unep-wcmc.org/wdpa/PA_growth_chart_2007.gif>.
- Whatmore, S. (2002) *Hybrid Geographies: Natures, Cultures, Spaces*, Thousand Oaks, CA: Sage.
- Whatmore, S. (2006) 'Materialist returns: practising cultural geography in and for a more-than-human world', *Cultural Geographies*, 13: 600–9.
- Willcox, L. and Ellenberger, D. (2000) *The Bear Essentials for Recovery: An Alternative Strategy for Long-term Restoration of Yellowstone's Great Bear*, Sierra Club Grizzly Bear Ecosystems Project <<http://sierraclub.org/grizzly/reports.asp>>.
- Winichakul, T. (1994) *Siam Mapped: A History of the Geo-body of a Nation*, Honolulu, HI: University of Hawaii Press.
- Wolch, J. and Emel, J. (1995) 'Bringing the animals back in', *Environment and Planning D: Society and Space*, 13: 632–6.
- Wolch, J. and Emel, J. (1998) *Animal Geographies: Place, Politics and Identity in the Nature-culture Borderlands*, London: Verso.
- Woodley, S. (1997) 'Science and protected area management: an ecosystem-based perspective', in J.G. Nelson and R. Serafin (eds.) *National Parks and Protected Areas: keystones to Conservation and Sustainable Development*, Berlin: Springer-Verlag.
- Zimmerer, K. (2000) 'The reworking of conservation geographies: nonequilibrium landscapes and nature-society hybrids', *Annals of the Association of American Geographers*, 90: 356–69.
- Zimmerer, K.S., Galt, R.E. and Buck, M.V. (2004) 'Globalization and multi-spatial trends in the coverage of protected-area conservation (1980–2000)', *Ambio*, 33: 520–9.