Chapter 1

Political versus Apolitical Ecologies

For many of us who are unable to travel to the plains of East Africa, our images of the region are given life on late-night cable wildlife television, in bold IMAX presentations at natural history museums, or perhaps in the vivid spectacle of Disney's *The Lion King*. The imagined patterns of the "circle of life" in these media – complete with lions, hyenas, and baboons – play out on a yellow-filtered savanna where migrations of wildebeest cross the Serengeti, chasing seasonal rainfall, hunted in turn by stoic predators. The scenes are compelling and they inspire in us a justifiable affection for the beauty and complexity of the non-human world around us. These images are also ecologically important, since they give us a picture of connectedness, which is essential to understanding life on the savanna. Across the borderlands of Kenya and Tanzania forage grasses follow rainfall, wildebeest pursue forage, predators pursue wildebeest, scavengers pursue predators, and so on.

The absence of people from these imaginary landscapes seems in no way strange for most of us; these are *natural* landscapes, apparently far from farms, factories, and the depredations of humankind. It is perhaps inevitable, therefore, that an intuitive reaction to the news that wildlife populations are in crisis – including declines in giraffe, topi, buffalo, warthog, gazelle, and eland – is to imagine that the intrusion of humankind into the system is the cause of the problem. Growing populations of impoverished African people, we might imagine, have contaminated the natural rhythm of the wilderness. Indeed, the sense of loss in contemplating the declining biodiversity and destroyed landscapes may inspire frustration, coupled with a feeling of helplessness; the situation in the Serengeti and the steady march of growing populations seem far beyond the control and influence of life where we live (Figure 1.1).

Stepping back from the savanna, however, and gazing across the Serengeti–Mara ecosystem both in time and in space, habitat loss and wildlife decline appear more complex and more connected to the daily lives and routines of urban people in the developed world. A cross-border analysis shows that the decline in habitat and

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Figure 1.1 Wildebeest crossing the Mara River in Kenya. The migration of wild animals across the region occurs amidst a fully humanized and highly political environment. Source: Photo © Paul Banton/Shutterstock.

wildlife in Kenya is far higher than that in Tanzania. Why? Rainfall, human population, and livestock numbers do not differ significantly. Rather, private holdings and investment in export cereal grains on the Kenyan side of the border have led to intensive cropping and the decline of habitat. These cereals are consumed around the world, as part of an increasingly globalized food economy. As Kenya is increasingly linked to these global markets and as pressure on local producers increases, habitat loss is accelerated. Less developed agricultural markets and less fully privatized land tenure systems in Tanzania mean less pressure on wildlife. The wildlife crisis in East Africa is more political and economic than demographic (Homewood et al. 2001).

These facts undermine widely held apolitical views about ecological relations in one of the most high-profile wildlife habitats in the world. They also point to faulty assumptions about the nature of "wild" Africa. First, the image of a Serengeti without people is a fallacious one. The Masai people and their ancestors inhabited the Central Rift Valley for thousands of years before European contact, living in and around wildlife for generations. Indeed, their removal from wildlife park areas has led to violent conflicts (Collett 1987). More generally, the isolation of these places is also a mistaken perception. Export crops from Kenya, including tea and coffee in other parts of Kenya beyond the Central Rift Valley, continue to find their way to consumers in the first world, even as their global prices fall, constraining producers who must increase production, planting more often and over greater areas, further changing local ecological conditions. With three-quarters of the population engaged in agriculture, economic margins for most Kenyans become tighter every year, and implications for habitat and wildlife more urgent.

The migration of the wildebeest, and its concomitant implications for grasslands and lions, therefore, does not occur outside the influences of a broader political economy. Land tenure laws, which set the terms for land conversion and cash cropping, are made by the Kenyan and Tanzanian states. Commodity markets, which determine prices for

Kenyan products and the ever-decreasing margins that drive decisions to cut trees or plant crops, are set on global markets. Money and pressure for wildlife enclosure, which fund the removal of native populations from the land, continue to come largely from multilateral institutions and first-world environmentalists. All of these spheres of activity are further arranged along linked axes of money, influence, and control. They are part of systems of power and influence that, unlike the imagined steady march of the population "explosion," are *tractable to challenge and reform*. They can be fixed.

The difference between this contextual approach and the more traditional way of viewing problems like this is the difference between a *political* and an *apolitical* ecology. This is the difference between identifying broader systems rather than blaming proximate and local forces, between viewing ecological systems as power-laden rather than politically inert, and between taking an explicitly normative approach rather than one that claims the objectivity of disinterest.

When the bottom drops out of the coffee market, as it did in 2014, what happens to the peasants who depend upon it and the forests in which it is harvested? When the government of India spends billions of dollars on massive afforestation programs, aimed at expanding tree cover and animal biodiversity, what actually happens to the areas designated for plantation and the people who live there?

These are the questions of political ecology, a field of critical research predicated on the assumption that any tug on the strands of the global web of human–environment linkages reverberates throughout the system as a whole. This burgeoning field has attracted several generations of scholars from the fields of anthropology, forestry, developmental studies, environmental sociology, environmental history, and geography. Its countless practitioners all query the relationship between economics, politics, and nature but come from varying backgrounds and training. Some are physical scientists (e.g., biologists, geomorphologists, and hydrologists), others are methodological technicians (e.g., geographic information or remote sensing specialists), while most are social scientists. All share an interest in the condition of the environment and the people who live and work within it. These researchers, moreover, advocate fundamental changes in the management of nature and the rights of people, directly or indirectly working with state and non-governmental organizations (NGOs) to challenge current conditions. This book reviews the work that these people do, pointing towards the common factors evident in a research area often noted for its diversity, and revealing the strengths and weaknesses in a field that has grown far too quickly to prepare a comprehensive survey or census of its accomplishments and failures.

What is Political Ecology?

The term political ecology is a generous one that embraces a range of definitions. A review of the term from its early use (first used to describe this kind of work by Wolf in 1972) to its most recent manifestations shows important differences in emphasis. Some definitions stress political economy, while others point to more formal political

institutions; some stress environmental change, while others emphasize narratives or stories about that change (see Table 1.1). Even so, there seems to be a set of common elements. The many definitions together suggest that political ecology represents an explicit alternative to "apolitical" ecology, that it works from a common set of assumptions, and that it employs a reasonably consistent mode of explanation.

Challenging apolitical ecologies

If there is a political ecology, by implication there must be an apolitical one. As such, research in the field commonly presents its accounts, whether explaining land degradation, local resource conflict, or state conservation failures, as an alternative to other perspectives. The most prominent of these apolitical approaches, which tend to dominate in global conversations surrounding the environment, are "ecoscarcity" and "modernization" accounts.

It is not my intention to provide sustained criticisms of these two approaches here; later chapters of the book should reveal the characteristics of these perspectives and demonstrate their ethical and practical weaknesses. An outline of each should suffice to present their basic arguments, with which readers are probably already very familiar, common as these approaches are to most environmental explanation.

Ecoscarcity and the limits to growth

The dominant contemporary narrative of environmental change and human–environment interaction is a well-established one with a long history. In Western Europe since the late 1700s, when human influence and response to the environment was first submitted to scientific scrutiny, the central driving explanation for social/ecological crisis has been increasing human population, measured in absolute numbers. Following from Thomas Malthus' *Essay on the Principle of Population*, the argument is straightforward: as human populations grow out of proportion to the capacity of the environmental system to support them, there is a crisis both for humans, whose numbers fall through starvation and disease-based mortality, and for nature, whose overused assets are driven past the point of self-renewal. This argument took many forms during the twentieth century, from the *Population Bomb* of Paul Ehrlich (1968) to the Club of Rome's *Limits to Growth* (Meadows et al. 1972), but its elements are consistent. All hold to the ultimate scarcity of non-human nature and the rapacity of humankind's growing numbers.

For ecoscarcity proponents, this is nowhere a more serious problem than that in the underdeveloped world, where growth rates and absolute numbers of people remain the highest in the world. That the poorest regions of the world are the repositories for what are viewed as important and scarce environmental goods makes the problem doubly serious. In this way of thinking, the perilous decline of Kenya's wildlife, as described above, can be predicted to follow inevitably from the growth of Kenya's population.

Table 1.1 Defining political ecology.

Author/source	Definition of "political ecology"	Goal
Cockburn and Ridgeway (1979)	"a useful way of describing the intentions of radical movements in the United States, in Western Europe and in other advanced industrial countries … very distant from the original rather sedate operations of the ecolobby" (p. 3)	Explicate and describe first-world urban and rural environmental degradation from corporate and state mismanagement; document social activism in response.
Blaikie and Brookfield (1987)	"combines the concerns of ecology and a broadly defined political economy. Together this encompasses the constantly shifting dialectic between society and land-based resources, and also within classes and groups within society itself" (p. 17)	Explain environmental change in terms of constrained local and regional production choices within global political economic forces, largely within a third-world and rural context.
Greenberg and Park (1994)	A synthesis of "political economy, with its insistence on the need to link the distribution of power with productive activity and ecological analysis, with its broader vision of bio-environmental relationships" (p. 1)	"Synthesize the central questions asked by the social sciences about the relations between human society, viewed in its bio-cultural-political complexity, and a significantly humanized nature" (p. 1).
Peet and Watts (1996b)	"a confluence between ecologically rooted social science and the principles of political economy" (p. 6)	Locates "movements emerging from the tensions and contradictions of under-production crises, understands the imaginary basis of their oppositions and visions for a better life and the discursive character of their politics, and sees the possibilities for broadening environmental issues into a movement for livelihood entitlements, and social justice" (pp. 38–39).
Forsyth (2003)	"the politics of ecology as a scientific legitimization environmental policy" (p. 4)	To "establish the political forces behind different accounts of 'ecology' as a representation of biophysical reality" (p. 4)

Table 1.1 (Continued)

Author/source	Definition of "political ecology"	Goal
Heynen, Kaika, and Swyngedouw (2006b)	"formulating political projects that are radically democratic in terms of the organization of the processes through which the environments that we (humans and non-humans) inhabit become produced" (p. 2)	To "untangle the interconnected economic, political, social and ecological processes that together form highly uneven urban socio-physical landscapes" (p. 16)
Bridge, McCarthy, and Perreault (2015a)	An environmental research field marked by a set of "common commitments" to "critical social theory", to "in-depth, direct observation involving qualitative methods", and a "normative political commitment to social justice and structural political change" (pp. 7–8)	"not just to explain social and environmental processes, but to construct an alternative understanding of them, with an orientation to social justice and radical politics" (p. 8)

Table 1.2 Who is overpopulated? Comparative per capita consumption of resources and production of waste. (Data adapted from World Resources Institute 2005).

Resource	India	United States
Meat (kg, 2009)[a]	4	120
Water (m^3, 1996–2005)[b]	1,089	2,842
Energy (kg oil equivalent, 2013)[c]	606	6,915
Carbon emissions (metric tons, 2013)[c]	1.6	16.4

India is three times larger than the United States, in terms of population, but consumes a comparatively tiny quantity of key resources and produces a fractional amount of waste.

[a] Food and Agriculture Organization of the United Nations

[b] Water Footprint Network (http://waterfootprint.org/en/resources/water-footprint-statistics/#CP3)

[c] World Bank – World Development Indicators

The problems with this line of argument are many. In general terms, and as will be shown throughout this book, the demographic explanation is a consistently weak predictor of environmental crisis and change. First, this is because the mitigating factors of affluence and technology tend to overwhelm the force of crude numbers. A very few members of the global village, after all, consume the majority of its resources (Table 1.2).

The more fundamental problem with this formulation, however, is that it posits the environment as a finite source of basic unchanging and essential elements,

which set absolute limits for human action. However intuitive (divide a limited stock of earth materials by a potentially infinite hungry human population and the result always approaches zero), this assumption has proved historically false and conceptually flawed.

Market "optimists," expressing the problem in economic terms, suggest that any form of resource scarcity creates a response that averts serious crisis. As a good becomes scarcer, they suggest, its price tends to rise, which results either in the clever use of substitutes and new technologies to increase efficiency, or in a simple decreased demand for that good. The result is that apparently finite resources are stretched to become infinitely available as consumers use less and producers supply more efficient alternatives and substitutes (Rees 1990). Even if populations rise on a limited land area, for example, the demand for land and rising land rents will increase its efficiency of use, with more and better production on each unit of land. Even if petroleum becomes scarce, the rising price per barrel will encourage the use of otherwise expensive alternatives like wind and solar power, or simply cause consumers to drive less, endlessly stretching the world's energy supply. While such optimistic prognoses are themselves fraught with problems, they do point to an important and increasingly well-accepted truism: resources are constructed rather than given.

Finally, the overall global trajectory of population is actually headed in the reverse direction from that predicted by Malthusian catastrophists. As of 2017, more than half the countries of the world were in a state of population decline, where fertility rates have fallen to less than the replacement rate (approximately 2.1 children per family). The seriousness of this transition is notable insofar as the greatest challenge for many countries in demographic decline is labor *scarcity*, not a surplus of people (Robbins and Smith 2017).

Since it was first offered up in Malthus' 1793 formulation, the ecoscarcity argument has been presented as an explicit justification for social policy. In particular, Malthus insisted that since famine and starvation were essential to controlling runaway human populations, such events are "natural" and inevitable. England's Poor Laws, the modest redistributive welfare subsidies to feed the most marginal groups, were pointless and counter-environmental. By increasing rather than decreasing their numbers, such subsidies were the source rather than the solution of misery (Malthus 1992, book 4, ch. 3, p. 227).

The implications for contemporary global environmentalism are equally programmatic. Environmental crises as demographic problems exist at the site of resource use, in and amongst the world's poor, who are simply too numerous. Subsidies of the poor do little to alleviate the crisis, since they only serve to reinforce the demographic trend. Population control, rather than reconfiguration of global distributions of power and goods, is the solution to ecological crisis. The continued advocacy of an apolitical natural-limits argument, therefore, is implicitly *political*, since it holds implications for the distribution and control of resources. Even so, Malthusianism regrettably remains a typical way of thinking about environmental change, and so provides a unifying target for many political ecologists.

Other apolitical ecologies: diffusion, valuation, and modernization

Other prominent accounts of environmental change also dominate current thinking, asserting apolitical answers to extremely political questions. It is commonly argued, for example, that ecological problems and crises throughout the world are the result of inadequate adoption and implementation of "modern" economic techniques of management, exploitation, and conservation. Generally, this way of thinking is underpinned by a commitment to economic efficiency.

These approaches to environmental management and ecological change generally assert that efficient solutions, determined in optimal economic terms, can create "win–win" outcomes where economic growth (sometimes termed "development") can occur alongside environmental conservation, simply by getting the prices and techniques right. Such approaches are persuasive, at least insofar as they reject the cataclysmic prognoses of Malthusian catastrophe described above. By freeing individuals and firms to seek their own best and most efficient use of resources, propelled by competition on an open market and sustained by modern technology, waste, environmental destruction, and resource degradation might be tamed.

For global ecology, such an approach suggests several general principles and policies. (1) Western/northern technology and techniques need to be diffused outwards to the underdeveloped world. (2) Firms and individuals must be connected to larger markets and given more exclusive property controls over environmental resources (e.g., land, air, wildlife). (3) For wilderness and biodiversity conservation, the benefits of these efficiencies must be realized through institutionalizing some form of valuation; environmental goods like wildebeest, air, and stream quality might be properly priced in an open market.

The debates and critiques surrounding such approaches and the logics that underpin them are too numerous to summarize here; even so, there are some serious general conceptual and empirical problems with this perspective. First, the assertion that modern technologies and markets can optimize production in the underdeveloped world, leading to conservation and environmental benefits, has proven historically uneven. The experience of the green revolution, where technologies of production developed in America and Europe were distributed and subsidized for agrarian production around the world, led to what even its advocates admit to be extensive environmental problems: exhausted soils, contaminated water, and increased pest invasions (Lal et al. 2002). Beyond these failings, the more general assertion that superior environmental knowledge originates in the global north for transfer to the global south is in itself problematic, reproducing as it does paternalistic colonial knowledge relations and a priori discounting the environmental practices of indigenous and local communities (Uphoff 1988). Efforts to price the economic value of environmental systems – most commonly referred to as "ecosystem services" in this approach – can result in remarkable unjust outcomes (Sikor 2013). A call to intensify these forms of exchange must be viewed skeptically.

On the other hand, certain kinds of modernization, at least those technological advances that have been seized by the world's poorest people to unleash their capacities

and meet their aspirations, are unquestionable environmental goods (Shellenberger and Nordhaus 2007). Consider the power and ubiquity of cell phones across Africa and South Asia, which have allowed famers to time their access to markets and improved livelihoods and the efficiencies of their systems of production. Similarly, revolutionary advances in modern rural medicine have empowered women, enabled careful planning of labor and reproduction, all the while improving the day-to-day quality of life. Even genetically modified organisms, with their many downsides, have availed themselves to the inventiveness of rural people, curtailed pesticide usage, and opened new livelihood strategies (Herring 2006, 2007). It would be folly for critical theorists and thinkers to allow their distrust of economistic thinking to blind them to the power of progressive technological change (Phillips 2015; see also Chapter 13).

Asserting and adopting the apparently apolitical approach suggested in market and modernization approaches, however, because of the institutional and political changes that such an approach requires, is inherently political. To individuate and distribute "collective" goods like forests or water by necessity requires the alienation of previous user groups. To implement new technological approaches in agriculture, resource extraction, or wilderness management requires a transformation of existing and traditional institutions, where new winners and losers might emerge. There is nothing apolitical about such proposals.

The first lesson to draw is that the dominant contemporary accounts of environmental crisis and ecological change (ecoscarcity and modernization) tend to ignore the significant influence of political economic forces. As we shall see, this is to ignore the most fundamental problems in contemporary ecology. The other lesson is that apolitical ecologies, regardless of claims to even-handed objectivity, are implicitly political. It is not so much that political ecology is "more political" than these other approaches to the environment. Rather it is simply more *explicit* in its normative goals and more outspoken about the assumptions from which its research is conducted.

Common assumptions and modes of explanation

Following Bryant and Bailey, political ecological accounts and research efforts also share a common premise, that environmental change and ecological conditions are the product of political process. This includes three fundamental and linked assumptions in approaching any research problem. Political ecologists: "accept the idea that costs and benefits associated with environmental change are for the most part distributed among actors unequally … [which inevitably] reinforces or reduces existing social and economic inequalities … [which holds] political implications in terms of the altered power of actors in relation to other actors" (Bryant and Bailey 1997, pp. 28–29).

Research tends to reveal winners and losers, hidden costs, and the differential power that produces social and environmental outcomes. As a result, political ecological research proceeds from central questions, such as: What causes regional forest loss?

Who benefits from wildlife conservation efforts and who loses? What political movements have grown from local land use transitions?

In answering, political ecologists follow a mode of explanation that evaluates the influence of variables acting at a number of scales, each nested within another, with local decisions influenced by regional polices, which are in turn directed by global politics and economics. Research pursues decisions at many levels, from the very local, where individual land managers make complex decisions about cutting trees, plowing fields, buying pesticides, and hiring labor, to the international, where multilateral lending agencies shift their multi-billion-dollar priorities from building dams to planting trees or farming fish. Such explanation also tends to be highly (sometimes recklessly) integrative. And as we shall see, a group of people and institutions has emerged around such integrative transgressions, a global assemblage of diverse practitioners who make certain kinds of movies, write certain kinds of books, and advance certain kinds of arguments.

So, rather than adding yet another definition to a crowded field, it is best to suggest at the outset that political ecology is a term that describes a *community of practice* united around a *certain kind of text*. The nature of this community and the quality of these texts, as well as the theory and empirical research that underpins them, are the topics of the remainder of this book. But broadly they can be understood to address the condition and change of social/environmental systems, with explicit consideration of relations of power. Political ecology, moreover, explores these social and environmental changes with an understanding that there are better, less coercive, less exploitative, and more sustainable ways of doing things. Finally, it is a field that stresses not only that ecological systems are political, but also that our very ideas about them are further delimited and directed through political and economic processes. As a result, political ecology presents a Jekyll and Hyde persona, attempting to do two things at once: critically explaining what is wrong with dominant accounts of environmental change, while at the same time exploring alternatives, adaptations, and creative human action in the face of mismanagement and exploitation, offering both a "hatchet" to take apart flawed, dangerous, and politically problematic accounts, and a "seed," to grow into new socio-ecologies (see Chapter 4).

Five Dominant Narratives in Political Ecology

In this sense, political ecology characterizes a kind of argument, text, or narrative, born of research efforts to expose the forces at work in ecological struggle and document alternatives in the face of change. This does not mean that political ecology is something that people must write and think about all the time. Much of this work is carried out by people who might never refer to themselves as political ecologists, who count writing, researching, or arguing as only one part of their job, or who might do so in only one sphere of their work. Neither is political ecology restricted to academics from the "first world." Indeed, the critical ideas and arguments of political ecology are produced

through the research and writing, blogging, filming, and advocacy of countless NGOs or activist groups around the world. This may actually comprise the largest share of work in political ecology. Published only in local meeting and development reports, or uploaded as short documentary videos or slide presentations, this work is as much a part of the field as the well-circulated books or refereed journal articles of formal science.

Big questions and theses

What unites the diverse work in these many locations is a general interest in five big themes. Over-simply, political ecology research has demonstrated (or attempted to demonstrate) the theses shown in Table 1.3, each of which receives a chapter later in this book.

The degradation and marginalization thesis
Otherwise environmentally innocuous production systems undergo transition to overexploitation of natural resources on which they depend as a response to state development intervention and/or increasing integration in regional and global markets. This may lead to increasing poverty and, cyclically, increasing overexploitation.

Table 1.3 Five theses of political ecology and the things they attempt to explain.

Thesis	What is explained?	Relevance
Degradation and marginalization	*Environmental conditions* (especially degradation) and the reasons for their change	Environmental degradation, long blamed on marginal people, is shown in its larger political and economic context.
Conservation and control	*Conservation outcomes* (especially failures)	Usually viewed as benign, efforts at environmental conservation are shown to have pernicious effects, and sometimes fail as a result.
Environmental conflict and exclusion	*Access* to the environment and conflicts over exclusion from it (especially natural resources)	Environmental conflicts are shown to be part of larger gendered, classed, and raced struggles and vice versa.
Environmental subjects and identity	*Identities* of people and social groups (especially new or emerging ones)	Political identities and social struggles are shown to be linked to basic issues of livelihood and environmental activity.
Political objects and actors	*Socio-political conditions* (especially deeply structured ones)	Political and economic systems are shown to be underpinned and affected by the non-human actors with which they are intertwined.

Similarly, sustainable community management is hypothesized to become unsustainable as a result of efforts by state authorities or outside firms to enclose traditional collective property or impose new/foreign institutions. Related assertions posit that modernist development efforts to improve production systems of local people have led contradictorily to decreased sustainability of local practice and a linked decrease in the equity of resource distribution.

The conservation and control thesis

Control of resources and landscapes has been wrested from producers or producer groups (associated by class, gender, or ethnicity) through the implementation of efforts to preserve "sustainability," "community," or "nature." In the process, local systems of livelihood, production, and socio-political organization have been disabled by officials and global interests seeking to preserve the "environment." Related work in this area has further demonstrated that where local production practices have historically been productive and relatively benign, they have been characterized as unsustainable by state authorities or other players in the struggle to control resources.

The environmental conflict and exclusion thesis

Increasing scarcities produced through resource enclosure or appropriation by state authorities, private firms, or social elites accelerate conflict among groups (gender, class, or ethnicity). Similarly, environmental problems become "socialized" when such groups secure control of collective resources at the expense of others by leveraging management interventions by development authorities, state agents, or private firms. So too, existing and long-term conflicts within and between communities are "ecologized" by changes in conservation or resource development policy.

The environmental subjects and identity thesis

Institutionalized and power-laden environmental management regimes have led to the emergence of new kinds of people, with their own emerging self-definitions, understandings of the world, and ecological ideologies and behaviors. More firmly: people's beliefs and attitudes do not lead to new environmental actions, behaviors, or rules systems; instead, new environmental actions, behaviors, or rules systems lead to new kinds of people. Correlatively, new environmental regimes and conditions have created opportunities or imperatives for local groups to secure and represent themselves politically. Such movements often represent a new form of political action, since their ecological strands can connect disparate groups, across class, ethnicity, and gender.

Political objects and actors thesis

Material characteristics of non-human nature and its components (dung, climate, refrigerators, bacteria, lawn grass, road salt, goats, and tropical soils) impinge upon the world of human struggles and are entwined within them, and so are inevitably political. Yet as these characteristics and agents assume new roles and take on new importance, they are also transformed by these interactions. People, institutions, communities, and

nations assemble and participate in the networks that emerge, leveraging power and influence, just as non-human organisms and communities do. In recent history, hegemonic institutions and individuals (environmental ministries, multinational corporations, corrupt foresters) have gained disproportionate influence by controlling and directing new connections and transformations, leading to unintended consequences and often pernicious results. In the process, resistance emerges from traditional, alternative, or progressive human/non-human alliances marginalized by such efforts (especially along lines of class, ethnicity, and gender).

The target of explanation

Of course, each of these theses actually seeks to explain something somewhat different. While degradation and marginalization offers an explanation of why *environmental systems* change (e.g., because of capital accumulation), environmental subjectivity research seeks to explain why *social identities* change (e.g., because of transformed environmental institutions). This diversity of targets for explanation has been the source of some confusion in the field (Vayda 2009; Vayda and Walters 1999) and reflects its historic development.

Research linking environmental change to political and economic marginalization emerged earliest, in the 1980s, querying links between the declining conditions of rain forests, cotton yields, or even workers' bodies and the integration into the global political economy (see Chapter 8). The problematic effects of global and regional conservation efforts, including World Heritage Sites, national parks, and biodiversity zones, became of increasing apparent in the 1990s, and political ecology on the topic has benefited from a growing interest later, in the 1990s and 2000s (Chapter 9). Interest in environmental conflict soon followed, as many environmental issues became increasingly politicized in both regional contexts, from Love Canal to the Amazonian rainforest, as well as global ones, with the emergence of global agreements and debates on climate and biodiversity (Chapter 10). Interest in the new environmental activism and identities grew from all of the issues above, and was placed squarely on the agenda by local people themselves, including movements of Andean smallholders, the Zapatistas, *chipko*, and a host of other movements (Chapter 11). An interest in political objects and agents is the most recent addition to debate in political ecology, rooted in its deep historical materialism, but also in a very recently emerging twenty-first century concern for the way the non-human world impinges on the human one (Chapter 12). These many topics and concerns overlap, and, as I hope to show by the end of the book, a coherent set of answers to these questions is beginning to achieve something of a consensus.

Moreover, in their linkages to local communities and NGOs, political ecologists, whether they are more interested in the biophysical or social aspects of a problem, have helped to build practical, detailed, integrated, empirical databases on all these diverse issues, recording land covers, farming practices, wildlife management systems,

technological innovations and diffusions, local folk tales and oral histories, and informal markets and economies. These basic empirical findings help communities make decisions, aid in advocacy for social and environmental causes, and serve as a record to future scholars about the way things looked at the dawn of the twenty-first century.

The value of this last contribution, providing an historical record, is not a trivial one. Much of what we know about the political economy of the environment is bequeathed to us by political ecologists of previous generations. Indeed, political ecology can arguably said to be very old, since nineteenth- and twentieth-century environmental research in geography, anthropology, and allied natural and social sciences has a long critical tradition. Even before a semi-coherent body of political ecological theory emerged in the late twentieth century, many explicitly political practitioners emerged from the ranks of field ecologists, ethnographers, explorers, and other researchers. These represent the deep roots of the field.