

BIODIVERSITY AS BIOPOLITICS

Cutting Up Wildlife and Choreographing Conservation in the United Kingdom

The term *biodiversity* was invented by a small group of conservation biologists in the mid-1980s.¹ This buzzword entered popular consciousness at the United Nations Earth Summit in Rio de Janeiro in 1992, where 155 states signed the Convention on Biological Diversity (CBD). Biodiversity promised a new way of understanding and governing the environment; its advocates sought to rationalize existing conservation and galvanize future action. The subsequent increase in the use of the term in scientific and policy circles has been meteoric. Biodiversity energized and has been institutionalized within the scientific discipline of conservation biology—a self-proclaimed “crisis discipline”²—whose adherents research and advocate scientific strategies for biodiversity conservation. In differing fashions biodiversity has been incorporated into the national environmental policies of signatory states. Biodiversity arrived in the United Kingdom, which is the principal focus of this chapter, in 1994, when the government published its Biodiversity Action Plan.³ Biodiversity has become a “global nature”: a hegemonic framework for conservation science and policy.⁴

The CBD defines biodiversity as “the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.”⁵ Conceived this way, the scope of biodiversity is panoptic; it encompasses everything, everywhere. It incorporates the three interwoven biological scales of genes, species, and ecosystems

on earth, in water, and in the sky. In most cases this definition is further expanded to include the processes that link these scales and spaces.⁶ In practice biodiversity did not emerge anew. It came out of and is thoroughly dependent on the embodied, affective, and technological encounters between multiple species that I describe in the previous chapter. Biodiversity happens in an assemblage. It inherits and is haunted by particular knowledges, habits, instruments, territories, and practices.

In this chapter I examine biodiversity as biopolitics. As I explain in the introduction, I understand biopolitics to describe late-modern ways of securing life at the scale of the population (or other aggregations of individuals). Biopolitics involves productive and destructive processes through which life is made to live or left to die. It involves interacting with diverse and lively forms of biopower: the agencies of organisms and ecologies whose lives are to be secured. There is a growing body of empirical work mapping different modes of nonhuman biopolitics, including agriculture, forestry, fishing, biosecurity, animal welfare, hunting, and pet keeping.⁷ Each has its own aims, privileged knowledge practices, and desired norms and subjects. Cutting across these modes, this work identifies a range of common and significant biopolitical practices concerned with understanding and intervening into the character, distribution, and dynamics of nonhuman populations. These include knowledge practices for identifying, classifying, counting, surveying, mapping, and calculating. Databases and models are key here. These knowledge practices inform practical management actions like culling, fencing, translocating, vaccinating, breeding, and planting.

To date there has been relatively little work on conservation as biopolitics.⁸ This is somewhat surprising, as in its recent concern for biodiversity conservation is an archetypal biopolitical practice. Biodiversity conservation seeks to secure the future health and diversity of life, which is understood as a vital and threatened yet unruly and unpredictable resource. Biodiversity is understood in aggregate terms, most commonly as dynamic populations of species that can be known, modeled, and governed through strategic interventions aimed at both human and nonhuman subjects. Biodiversity conservation is informed by a desire for panoptic knowledge, comprehensive accounting, and

efficient, instrumental management. It seeks to rationalize existing practice through the development and dissemination of standardized criteria and modes of interacting. This involves extensive and diverse knowledge practices, material instruments, and practical, skilled interventions. Efforts to secure and enhance life inevitably involve letting other life die, especially at a time of accelerated extinction.

My aim in this chapter and the two that follow is to begin to address this gap. I present biodiversity as a form of environmental governance actively shaping human and nonhuman subjects and the wider ecologies they inhabit. I seek to contextualize the encounters discussed in the previous chapter, to trace how they are political, in the broad sense that they are actively bringing new worlds into being and thus foreclosing on other possibilities. Here, I am interested in what sociologists of science have described as “ontological choreography” and “ontological politics” of science in practice.⁹ I trace how biodiversity conservationists “cut up”¹⁰ the flux of the wildlife to create the units, theories, models, and territories that come to inform practical action. I examine the derivation and performance of a framing of wildlife that departs from the panoptic aspirations of the official definition of biodiversity to focus on a charismatic set of species. In chapters 4 and 5, I critically evaluate the differences between two equally successful, but very different, ways in which the biopolitics of conservation takes place. The balance of my analysis is toward the nonhuman consequences of different ways of conducting conservation, but in the hybrid immanent ecologies of the Anthropocene, conservation inevitably impinges on the discordant values, practices, and livelihoods of diverse human actors. Here, biodiversity comes to inform contested environmentalities geared toward shaping good conservation subjects.

BIODIVERSITY IN THE UNITED KINGDOM

I focus my analysis on the United Kingdom and draw on research I conducted on the arrival and accommodation of biodiversity into its national conservation infrastructure.¹¹ The United Kingdom offers an interesting case study. It is the country (or more accurately, increasingly devolved and disunited set of nations) with arguably the oldest, largest, and best-funded infrastructure for biological research and

conservation in the world. It has some of the most extensive national surveillance programs and associated biological databases. It hosts several of the oldest, largest, and most powerful conservation non-governmental organizations (NGOs). These organizations have wide public support and extensive land holdings and financial resources.¹² The United Kingdom has pioneered important elements of the science and practice of nature conservation and has been an active exporter of conservation from its colonial era to the present day.¹³ Many of the characteristics of UK conservation that I outline are common elsewhere. British people are also famed, among other less desirable accolades, for being a nation of animal lovers.¹⁴

Where conservation in the United Kingdom (and in much of western Europe) differs from that in many other parts of the world is in its limited embrace of the processes of neoliberalism, whose influence critics have identified in nature conservation elsewhere and in other domains of environmental policy. This is changing, but during the period on which I focus (1992–2002), the political economy of conservation in the United Kingdom was dominated by a range of NGOs working in conjunction with sympathetic statutory authorities at the national and European scale. These groups were largely opposed to the logics of private property, markets, and commodification. Conservation management was funded through volunteer donations, direct public payments, and, most significantly, taxpayer-funded agro-environmental subsidies delivered through the EU Common Agricultural Policy.

Conservation research and monitoring was conducted largely by amateurs, in house at NGOs, or in public universities and research institutes. Although the United Kingdom has some of the most concentrated levels of private land ownership in the world,¹⁵ the political economy of its conservation is characterized by volunteerism, donation, and subsidy. This political economy comes to frame the mode of biopolitics that I detail in this chapter and the two that follow. In chapter 7, I trace how the biopolitics of conservation changes when markets and commodities become more significant

At the time of the Earth Summit, nature conservation in the United Kingdom was well founded. It encompassed a wide diversity of organizations whose membership encompassed nearly 10 percent

of the population. It enjoyed a large area of designated land and had a solid legal framework. There was a long history of scientific research and monitoring. There was, however, a great deal of organizational overlap, duplication, and confusion. Conservation was an amateur practice motivated by a wider range of intellectual, political, and ethical enthusiasms. Relevant data were scattered and often incommensurable. British conservationists were early adopters of the neologism *biodiversity*, recognizing its political and economic potential and the mandate it offered for organizational change. They pressurized the UK government to attend, ratify, and implement the CBD.

The result was the UK Biodiversity Action Plan (UKBAP), which was drawn up and swiftly published two years after the Earth Summit. Scientists and civil servants on the steering group responsible for drafting this report were charged with rationalizing existing practice to bring it in line with the panoptic ambition, instrumental logics, and normative discourse of the CBD. This document offers an ambitious blueprint for conservation. It summarizes the state of biological knowledge, sets priorities for future action, offers a model through which they might be delivered, and establishes targets by which its implementation might be audited.

The UKBAP and associated documentation are dry and technical. They have much more to say about the how of conservation than why we should conserve. Where reasons are offered, a utilitarian rationale is paramount. The text invokes the (then novel and fashionable) logics of sustainable development, arguing that “biodiversity should be treated as a global resource to be protected and conserved according to the principles of ecological, economic and social sustainability.”¹⁶ Biodiversity, they argue, can be evaluated and managed as a resource according to the economic criteria of rarity and threat. In contrast, the aesthetic and intrinsic values of biodiversity are downplayed, as they “cannot be readily quantified.”¹⁷ Normatively, this utilitarian ethic constitutes a universal, scientific appeal to people to look after themselves, their way of life, and their future dependents. Biodiversity conservation is here understood as the rational desire to protect our ecological life-support system and the present and future inputs to our economy.

The main policy outcome of the UKBAP was the identification

of 391 species whose populations would be subject to individual species action plans. A species action plan is a standardized document summarizing the current status of the species, the factors leading to its decline, and the action currently under way. The plan then outlines objectives, targets, and proposed actions for conservation.¹⁸ These are a ubiquitous biopolitical technology in biodiversity conservation. For reasons I expand upon, the species has been taken largely as the principal ontological unit for biodiversity conservation (in the United Kingdom and elsewhere). In the UKBAP, delivering the 391 species' action plans became synonymous with securing the future of UK biodiversity. The processes by which these plans were derived and through which they were to be implemented thus constitute the foci of this inquiry into the biopolitics of UK biodiversity conservation.

Figure 4 provides a schematic visualization of biodiversity conservation in the United Kingdom. It identifies four main arenas through which wildlife passes in being framed and governed as a subset of species. The figure shows that in order for a species to be conserved it must first be described (Arena 1). Here, a collection of similar organisms are given a discrete taxonomic identity (ideally both a scientific binomial and a popular name), classified by a qualified taxonomist, and have a unique "type specimen" lodged in an accessible (preferably digitized) collection for subsequent cross-reference. Ideally, a species would feature in a field guide to enable subsequent identification. In order to understand the distribution and dynamics of a species' national population, it must be surveyed (Arena 2[a]). Here, organisms conforming to a species identifier are counted as a population over a suitable spatial and temporal scale according to consistent methodology to generate an accessible, standardized, and numerical dataset. Regular surveillance is vital for assessing the efficacy of conservation actions. A species must be researched to establish the causes of observed or potential population dynamics (Arena 2[b]). This requires interested, skilled, and resourced researchers; relevant published research and potential publishing outlets; research instruments; and accessible field sites.

To qualify for conservation action, a species' status must be evaluated (Arena 3[a]). Here, existing biological records and ecological research are collected, rendered commensurable, and aggregated. They

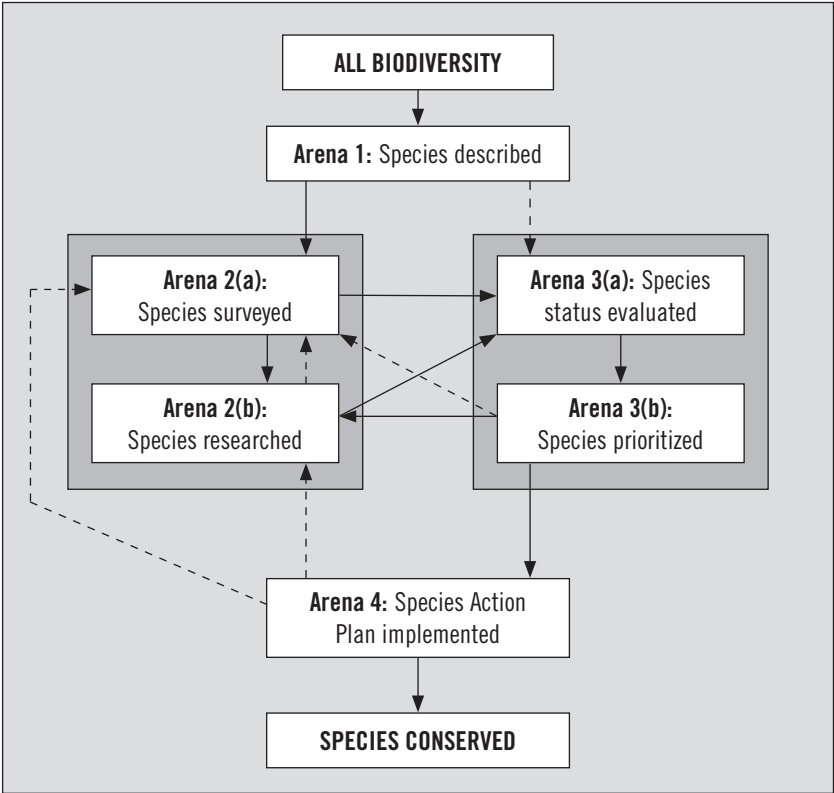


FIGURE 4. A schematic visualization of biodiversity conservation in the United Kingdom. A species' passage is not necessarily linear, though all species must first be described. Species with the longest history of natural history interest will proceed in order through arenas 1 to 4 (shown in bold). In contrast, other taxa (like many invertebrates) may not be researched and monitored until they have first been prioritized. As such, arenas 2 to 4 should be understood as interwoven, with different species tracing different trajectories between them (shown by the broken lines).

are evaluated in relation to international and national criteria of rarity and threat—the most common being those that inform the International Union for Conservation of Nature (IUCN) red list of globally threatened species.¹⁹ The United Kingdom also has a national list of species of conservation concern. If a species is evaluated as threatened, it might then be prioritized for conservation (Arena 3[b]). This offers

legal protection, creates a political mandate for action, and generates economic resources. Finally, a species must have an action plan successfully implemented on its behalf (Arena 4). This involves a wide range of interventions, depending on the species' ecological requirements and the nature of the threat. Common practices involve the acquisition and designation of land; legislation and subsidies to ensure sympathetic land management; and publicity, education, and advocacy to change human behavior.

The technologies, spaces, practices, and bodies that constitute these four arenas make up the material assemblage of UK biodiversity conservation. Many of these arenas are generic, and Figure 4 provides a useful model for understanding biodiversity conservation worldwide. Activities in each of the arenas cut up the diversity of life to generate manageable units, categories, models, maps, and other abstractions that come to guide practical action. It is through the diverse encounters that take place in these areas that these abstractions get performed and the biopolitics of UK conservation takes place. Here, I am particularly interested in how the diversity of wildlife introduced in chapter 1 gets framed and filtered through the operations of each of these arenas.

Figure 5 gives an illustration of this process. Here, the potentially infinitesimal diversity of UK wildlife is understood to comprise roughly 96,000 species. This is the total number that had been described when the UKBAP was drawn up. The population dynamics of about 13,000 of these had been surveyed,²⁰ and some 1,252 had had their status evaluated according to consistent criteria produced by the IUCN.²¹ Of these, 391 were prioritized for action plans. Through this process the diversity of UK wildlife is reduced to 391 species. As I explain, there are distinct taxonomic partialities in the scope of each of these filters that relate to their dependence on the encounters I detail in the previous chapter. As a consequence the biopolitical assemblage illustrated in Figure 4 can be understood as an "oligopticon,"²² an inevitable and necessary, but nonetheless partial, framing at odds with the panoptic aspirations of biodiversity.

Before zooming in on the activities and impact of UK biodiversity conservation to explore this filtering, it is important to contextualize

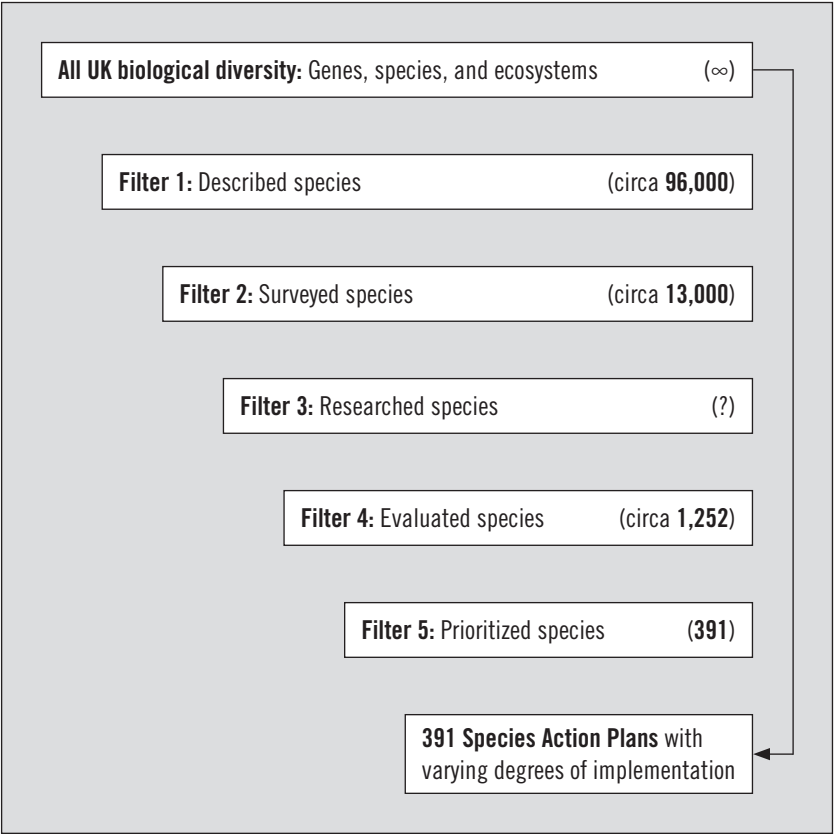


FIGURE 5. Illustration of the filtering mechanisms performed in the different arenas of the UKBAP.

and bound some of the claims to significance that follow. First, I should be clear that the in situ conservation of a prioritized species has beneficial (and sometimes detrimental) effects on the wide range of organisms with which it shares its habitat. Indeed, some of the species selected for the UKBAP were prioritized for their keystone or umbrella status, in the hope that their salvation would ensure the salvation of a range of valued others. As I explain in more detail in chapter 7, the ecological concept of a keystone species is different from

that of a flagship species. These are iconic species with popular appeal, mobilized to build interest, support, and funds for conservation.

Second, although biodiversity might be hegemonic in conservation, it is one among many competing ways of managing the environment. In this competition it is certainly not all-powerful. In spite of a significant expansion in knowledge, territory, resources, and support since the Earth Summit, biodiversity is (even on its own terms) failing.²³ When the signatory governments gathered in Nagoya in 2012 to report on progress twenty years after the CBD targets, the story was of continued and sometimes accelerated declines. This is true in the United Kingdom as much as it is globally. Paradoxically, as biodiversity flourishes as a governance regime so the nonhuman difference it seeks to conserve continues to ebb. Agriculture, fishing, forestry, and other productive forms of environmental management continue to take their toll.

Finally, beyond the limited set of organisms nurtured by agriculture, the species that are faring best in contemporary hybrid ecologies are those most able to occupy its modified spaces and spatialities. The invasive, nonnative “global swarms” and feral “synurbics” encountered in chapter 1 trouble conservationists as biosecurity threats—pest species that threaten biodiversity and circumvent human efforts toward their control. As I caution in the introduction, we should be wary of the popular anthropocentric metaphor of biodiversity conservation as an ark for the Anthropocene. The biopolitics of biodiversity will shape but not determine future ecologies. There are powerful inhuman natures at work here on a dynamic and warming planet that will shape future ecologies.

Figure 4 describes a wide range of multispecies relations too numerous and diverse for me to do justice in this chapter. In the following chapter, I trace the passage of the corncrake through these different arenas. Here, I focus on four significant knowledge practices and performative interventions within the wider operations of UK biodiversity conservation. These help illustrate the utility of conceiving of biodiversity as biopolitics and help account for the operations and scope of the UKBAP oligopticon. I start with the use of species as the primary ontological unit for biodiversity before describing species description, surveillance, and action plan implementation.

SPECIES: AN INTUITIVE ONTOLOGY FOR BIODIVERSITY

In my first ethnographic and textual encounters with conservation biology, it came as something of a surprise to discover that there is still such a great deal of uncertainty and debate within the discipline over the nature of the basic units that should be used to organize practical conservation. In theory, as previously explained, biodiversity encompasses the three scales of genes, species, and ecosystems. In practice it is difficult to identify and quantify all three of these in the field. Although there have been significant advancements with the advent of DNA bar coding, the technology for identifying genetic diversity is relatively new, expensive, time consuming, and practically inoperable for many species across a whole field site.²⁴ On a larger scale the clear delineation and classification of ecosystems is made problematic by their lack of spatial and temporal boundaries. Although the differences between a desert and a rain forest are clear in isolation, boundaries are often fuzzy and dynamic.

As a consequence, and given the imperative for action that motivates biodiversity conservation, the majority of taxonomists and conservation biologists have settled uneasily upon a species ontology. As the authoritative United Nations Environment Program's *Global Biodiversity Assessment* puts it, most studies that aim to quantify and map biodiversity

focus primarily on taxonomic group units and on species in particular, not because they are of greater significance in biodiversity terms than ecological systems or genes but because these taxonomic units can be counted and, if identified securely, summed across ecological hierarchies and across geographical scales.²⁵

Species are employed as the basic units for quantifying biodiversity and constitute the principal targets for conservation action.²⁶ Although the UKBAP also identifies forty-five priority habitats for conservation, a subset of species is used as indicators for measuring their health and the efficacy of conservation actions.

This consensus on the use of the species is an uneasy one. There is still a great deal of discussion in systematics over the veracity of the

species as the basic building block of biodiversity.²⁷ This discussion concerns the very existence of any definition of a species that is universal to all taxa. There is an extensive and largely unresolved literature debating the “biological-species concept,” of which I provide only a brief overview.²⁸ Richard Primack explains how a species is generally defined in one of two ways, which he terms the “morphological” and the “biological” definitions. The morphological definition of a species, most commonly used by taxonomists, surmises that “a species can be defined as a group of individuals that are morphologically, physiologically, or biochemically distinct from other groups in some characteristic. It relies on DNA sequences to differentiate genetically between species that look almost identical.” In contrast, the biological definition of species argues that “a species can be distinguished as a group of individuals that can potentially breed among themselves and do not breed with individuals of other groups.” He goes on to explain that this approach is more commonly used by evolutionary biologists because “it is based on measurable genetic relationships rather than on somewhat subjective physical features.”²⁹ In practice, however, the biological definition of a species requires information that is rarely available in the field, where species most commonly need to be identified and differentiated.

Problems arise in differentiating between both morphologically similar “sibling species” that are actually biologically different and morphologically different individuals of the same species. Matters are further confused by hybrid species—generated by mating between otherwise distinct species. This is especially common in plant species in disturbed habitats. Evolutionary biologists and taxonomists grappling with this issue have proposed many other forms of species definition, but none of these have become a universally shared mode of differentiating the basic units of biological diversity. E. O. Wilson explains that “so far as we know, no way exists to lump or to split [species] into groups except by what the human mind finds practical and aesthetically pleasing.”³⁰ Rather than becoming paralyzed by this barrier, Malcolm Hunter suggests conservationists use the following fallback definition: “A species is what a competent taxonomist says it is.”³¹ In practice, therefore, the identification of a species results from the classificatory endeavors of a talented and experienced taxonomist, who might employ a range of different definitions.

Species offer conservation biologists a practical, “intuitive ontology”—to use Scott Atran’s phrase.³² Drawing on the embodied epistemology outlined in the previous chapter, we can understand how species are much easier to tune in to than dynamic, invisible, and abstract entities such as ecosystems and genes. Discrete species—especially those that can be identified by morphological/audible differences—provide accessible units for listing, counting, mapping, and auditing the success of conservation interventions. Species provide a handy index of current ecological composition for monitoring change. They are the canary in the coal mine. As I discuss in more detail in chapter 5, diffuse and nonlinear ecological processes are much more difficult to bound, define, and monitor. Common definitions of species also favor the classification of higher-order animal species with greater ecological charisma—for example, those that reproduce sexually and are more easily differentiated by the human eye. This selection of the species as the basic ontological unit for practical conservation, as in the UKBAP, can be therefore understood as the first “cut” to be performed in the biopolitics of biodiversity. In the following two chapters, I discuss some of the problems associated with framing conservation too narrowly around species composition.

DESCRIPTION

In addition to uncertainties about the universality of the concept of the species, panoptic conservation is further stymied by significant ignorance of the total number, distribution, and dynamics of species in the world. Taxonomy is the discipline responsible for naming and classifying organisms. It has a long history, a distinct geography, and a set of knowledge practices with interests and priorities that precede (and still supersede) the biodiversity crisis and its demand for global inventories. It is also a discipline in decline.³³ In 1995 the authoritative *Global Biodiversity Assessment* reported:

The existing species record is deficient in several respects. . . . It is partial (many species have not been described), inaccurate (it contains errors of taxonomic judgment and of many other kinds), and biased (it is clearly more complete and more accurate for some groups of organisms).³⁴

Respected estimates of the potential total number of species in the world range from 3 to 100 million.³⁵ Estimates of the number of described species also vary,³⁶ with a figure of 1.2 million commonly cited as the known total. One recent authoritative paper calculates a possible total of 8.7 million and suggests that some 86 percent of existing species on earth still await description.³⁷ As Wilson puts it, in species terms “we live on a largely unexplored planet.”³⁸ The biopolitical aspirations of panoptic planetary management embodied within biodiversity conservation are currently thwarted by the embarrassing absence of this basic knowledge. For Wilson and others this is a travesty, and the completion of a planetary species inventory has become a rallying cry for further investment in biological and taxonomic science.³⁹

There is a striking taxonomy to this partial subset of described species, with some groups being significantly better described than others (i.e., a higher proportion of their believed total have been named). In a commentary in *Nature* in 1992, the influential biologists Kevin Gaston and Robert May argue that these description patterns reflect the “taxonomy of taxonomists,” which “is ill matched to the species richness of taxa and to the magnitude of the jobs remaining to be done for different groups.” They note that “with respect to taxonomic attention, the average plant species does about an order of magnitude worse than the average vertebrate species and an order of magnitude better than the average invertebrate.”⁴⁰ Species favored by taxonomists are generally conspicuous, abundant species with large geographical ranges and body sizes.⁴¹ The foci and subsequent scope of taxonomy are strongly configured by the ecological charisma of the organisms to be described.

Taxonomists’ preferences are also shaped by an organism’s corporeal charisma in relation to the knowledge practices and affective logics of systematics (the wider field of which taxonomy forms a part). Systematists’ interests extend well beyond inventory and collection and concern classification and evolution. They are interested in questions and enjoy the answers provided by groups of model organisms, as Darwin showed famously in his enthusiasm for beetles. In a letter to his neighbor, the entomologist John Lubbock, in 1854, he reveals, “I feel like an old war-horse at the sound of a trumpet when I read about the capture of rare beetles—is this not the magnanimous simile for

a decayed entomologist? It really almost makes me long to begin collecting again.”⁴² The taxonomic archive embodies the historical legacy of these passions and interests.

SURVEILLANCE

The United Kingdom has a low density of species and a high density of interested humans. This makes it possible to estimate the total number of national species with greater confidence, although similar taxonomic partialities exist and new discoveries occur with some frequency. When the UKBAP was drafted, the total number of described species was calculated as approximately 96,000.⁴³ More striking partialities exist in species surveillance, the second arena identified in Figure 4, which plays a vital role in the biopolitics of UK biodiversity conservation. As I trace in more detail in the following chapter, it is through surveillance that a species can be framed as a dynamic population, evaluated and prioritized for conservation, and made the calculable subject of various forms of intervention. Surveillance provides the data through which governance is planned and audited.

To inform the UKBAP, a review was commissioned into the state of surveillance in the United Kingdom and resulting biological data holdings. The authors identify at least 2,000 different organizations, encompassing over 300,000 people, who survey with varying degrees of regularity every year. Annually, they report on the national distribution of approximately 450 species of birds, 50 of butterflies, and 750 of lichens. A further 12,000 species are surveyed more intermittently and patchily.⁴⁴ The majority of these surveyors are volunteers. The primary organizations for coordinating their enthusiasms are the British Trust for Ornithology, which is responsible for all bird surveillance and the data it produces, and the Biological Records Centre (BRC), which coordinates the work and data of eighty smaller national recording organizations that represent all groups other than birds, lichens and algae, and sea life. As well as aggregating ad hoc data, these organizations are responsible for proactive surveillance. They devise and disseminate survey methodologies and distribute technologies to enable surveyors to trap, locate, and identify a species and to tune in to its ecology. They must ensure that the entire range of a species, or

at least a stratified sample of it, is covered by their surveyors. They must also be able to collect, aggregate, standardize, store, and analyze the results of any surveillance initiative. Historical enthusiasms for counting species have generated a wealth of data. The authors of the review identify 1,386 datasets, stored in over two thousand different locations and containing over 63.5 million records.⁴⁵

Although the UK flora and fauna are arguably the most surveyed of any nation in the world, their surveillance shows a distinct taxonomy. This is also a concern for the review, whose findings are reproduced in Table I. On a broad scale it identifies a similar taxonomy to species description, with preferences shown in the percentage of total data toward vertebrate species (66 percent) and plants (25 percent), rather than invertebrates (8 percent). The largest single dataset is the 23 million ringing records held by the British Trust for Ornithology. A closer look at the vertebrate records shows that nearly 99 percent of this data has been collected solely on bird species. The United Kingdom's 300,000 mammal records are dwarfed by the 41 million records that have been collected on birds.⁴⁶ Among invertebrate records there are distinct preferences expressed toward Lepidoptera (butterflies and moths) and Coleoptera (beetles).

Taxonomic partialities toward birds are easily linked to their ecological and corporeal charisma, outlined in the previous chapter—most especially, their relative detectability and potential for listing. The readiness of birds for surveillance also helps explain the long-standing, popular, and well-resourced institutional infrastructure that exists to support bird monitoring and research. There is a positive feedback mechanism at work here whereby potential surveyors are drawn to visible species with accessible guidebooks, sociable networks of fellow enthusiasts and mentors, and well-organized survey programs.⁴⁷ Here, past preferences come to groove future practice. Such inertia can be circumvented. For example, several of the naturalists I spoke to while conducting this research explained how the publication of an accessible guidebook to UK hover flies⁴⁸ spurred lepidopterists, dragonfly enthusiasts, and even some birders to expand the scope of their observations.

Institutional capacity for surveying a group of species also helps overcome what the sociologist of science Geoffrey Bowker has termed

TABLE 1. THE TAXONOMIC BREAKDOWN OF UK BIOLOGICAL RECORDS		
TAXONOMIC GROUP	TOTAL RECORDS ('000S)	% OF TOTAL DATA
Lower plants	2,153	3
Vascular plants	13,937	22
Invertebrates	5,314	8
Butterflies and moths	1,556	2.4
Beetles	740	1.2
Vertebrates	41,918	66
Fish	98	0.1
Herpetiles	31	0.1
Birds	41,340	65
Mammals	303	0.5
Total	63,442	100

the problem of “datadiversity” in biological records.⁴⁹ This describes the multitude of diverse data standards layered into biological databases that hinder their successful integration and deployment for conservation. This was a major problem for the UKBAP and was most acutely experienced in the data generated by the large number of relatively small datasets on invertebrates that are listed in Table 1. Different and discrete cultures of counting and collecting have given rise to multiple names and taxonomies, incommensurable time series and mapping conventions, and diverse listing practices encoded into incompatible software programs. All of these conspired to curtail the usefulness of historic records and made data management a key concern of the UKBAP, resulting in a significant investment in the creation of the National Biodiversity Network.⁵⁰

SPECIES ACTION PLAN IMPLEMENTATION

One of the key factors that influenced which species had sufficient knowledge to be evaluated and prioritized for conservation was a species’ representation by an NGO. As a result of the voluntarist, not-for-profit political economy of UK conservation in the late 1990s, the interests, efficacy, and power of conservation NGOs becomes even

Copyright © 2015. University of Minnesota Press. All rights reserved.

more important for implementing species action plans, which requires funds, popular support, political leverage, and land ownership. There is a great range and diversity here. In their historical development, UK conservation NGOs have tended to focus on either specific taxa or land acquisition. Examples of the former include the Royal Society for the Protection of Birds (RSPB), Plantlife, Butterfly Conservation, the Mammal Society, and the Herpetological Conservation Trust, to name but a few. Although these organizations do collaborate, they are often in direct competition for members and the voluntary enthusiasms of amateur surveyors. There are stark differences in the resources they can mobilize. For example, in 2001 the RSPB had over a million members and an annual income of £48 million. It also owns or manages over 100,000 hectares of land.

When it came to the UKBAP, NGOs tended to concentrate their resources on the action plans for species in their taxonomic jurisdiction. Birds were well represented by the RSPB. Their popularity coupled with the organization's sophisticated lobbying power even ensured that populations of wild birds were included in 2001 as a "headline indicator" in the (then Labour) government's "quality of life counts." These claimed to provide transparent targets to measure progress on achieving sustainable development.⁵¹ In contrast, invertebrate groups were poorly served by the large number of small, amateur, and often impoverished organizations. There was little coordination between these groups as to how conservation status should be evaluated, priorities should be set, and who should be responsible for implementing the invertebrate action plans.⁵² This state of organizational disarray helps account for the high number of invertebrate plans that did not have a lead partner organization and thus saw limited implementation. Again, past wealth and capacity unequally distributed across taxa came to groove future action, shaping the performance of biodiversity conservation.

But the past is not determinate. As a result of the organizational disarray in UK invertebrate conservation in response to the UKBAP, key figures within the statutory authorities and invertebrate world decided to form an umbrella conservation body for invertebrates. Buglife was founded in 2002 with support from the RSPB and a number of other organizations, along with two large legacies.⁵³ It has since

flourished, building up a membership, establishing targets, bringing together and standardizing datasets, and generally raising the public profile of invertebrates in the United Kingdom. The dynamics of beetle populations are not yet taken as surrogates for the good life, but their fate is in better hands.

PERFORMING BIODIVERSITY

In this chapter I have examined biodiversity as a mode of biopolitics. In theory, biodiversity promises a new way of understanding and governing conservation. It has panoptic aspirations to secure the full diversity of life at the interconnected scales of genes, species, and ecosystems. It imagines a scientific paradise of well-funded, rational resource management, enabling the full inventory of life, systematic means to monitor its dynamics, and efficacious means to intervene at moments of crisis. In practice, as I have traced, in the context of the United Kingdom biodiversity as biopolitics works within the ecological, corporeal, cultural, and institutional constraints that characterize the assemblage of UK nature conservation. It is dependent upon the material possibilities for field science, historic data, the real estate of nature reserves, and the resources of NGOs.

Here, biodiversity as biopolitics cuts up the flux of wildlife to create a practical set of units for action. It has tended to focus on species rather than on genes or habitats. There is a clear taxonomy among these species as to the degree of interest, knowledge, resources, and institutional support they receive. Birds, large plants, mammals, and some groups of invertebrates, like butterflies and beetles, have been popular. The vast majority of invertebrates have been relatively neglected. This analysis suggests that UK conservation is guided less by the panoptic logic of biodiversity and more by a taxonomy of nonhuman charisma that emerges out of the encounters detailed in chapter 2. This taxonomy is embedded within the institutional assemblages that perform conservation. There is a grooving effect here, where past practice shapes future encounters. But there is also scope for difference. New technologies, charismatic individuals, and institutional developments have helped widen the scope of knowledge and concern.

The implications of this analysis are important for understanding

and informing the scope and conduct of conservation after the Anthropocene. Paradoxically, for a science and practice dedicated to a return to Nature, biodiversity is fundamentally data based—its future tied to its presence in lists, categories, and action plans. As Geoffrey Bowker notes in his work on biodiversity databases, assemblages are performative, anticipating and shaping the bodies and ecologies they purport to represent.⁵⁴ While acknowledging my caveats, biodiversity conservation in the United Kingdom is likely to result in a convergence between the ecologies known and valued in the current conservation assemblage and the landscapes subject to its governance. In an epoch of accelerated extinction, the future looks bleak for the vast majority of forms of life not blessed by charisma, adaptive enough to go feral, or productive enough to be domesticated.

In the next chapter I illustrate the further significance of this performativity by examining a popular, successful, but contested mode of European conservation that targets populations of species that inhabit premodern agricultural landscapes. The aim of this mode of biopolitics is to avert change, to preserve present composition through calculation and intervention. I compare this with an emerging alternative concerned less with species and past–present ecologies and more with nurturing processes. I attend to the ontological politics at the interface of these very different ways of choreographing conservation.