Introduction

This book is an investigation of the ambivalent promise of bioprospecting—a distinctly late-twentieth-century practice that stands at the very center of contemporary contests over indigenous rights, corporate accountabilities, and ethical scientific research. Bioprospecting is the new name for an old practice: it refers to corporate drug development based on medicinal plants, traditional knowledge, and microbes culled from the "biodiversity-rich" regions of the globe—most of which reside in the so-called developing nations. The novelty lies in some distinctive parameters, which we might tentatively call "ethical," that have been placed around these longstanding practices of resource acquisition. On the strength of a succession of related, ongoing events and mobilizations in the 1980s and early 1990s—among them, indigenous rights movements, some transformative shifts in academic research protocols, and sustainable development/biodiversity conservation strategies—such "takings" now come with a mandate to "give back." Drug and biotechnology companies are thus under a fragile obligation to ensure that wealth they create based on biodiversity and traditional knowledge in turn generates some form of "equitable returns" for the source nations and communities who provided them with lucrative leads in the first place.

The 1992 UN Convention on Biological Diversity (CBD) has been particularly influential in reshaping the global topographies of rights and obligations that mark this contentious terrain of appropriation and exploration. The CBD, drafted at the UN Conference on Environment and Development in Rio de Janeiro, Brazil, is a living and much-contested document, particularly with regard to one of its most distinctive mandates: the

requirement that companies compensate or otherwise share benefits with source nations, as a condition for their continued access to "Southern" biological resources. It is a vulnerable mandate in more ways than one, as we shall see throughout this account. But, however provisionally, the CBD has produced both an idiom of expectation and an institutional framework that together have had some notable effects on the south-north traffic in biological resources. While pharmaceutical and agrochemical companies have long made use of biological material from plants, animals, and microbes found in the biodiversity-rich Southern Hemisphere, they now do so under a new multilateral expectation—backed up by an increasing number of national laws in signatory nations and, not insignificantly, the watchful eyes of international and national activist groups—to turn a one-way process of extraction into a multidirectional form of exchange.

Not surprisingly, this incitement to share generates as many questions as it is meant to resolve. How much, and in what currency (royalties, technology transfer, scientific training, community development projects?) should corporations pay for access to southern plants and local or traditional knowledge about their uses? To whom, precisely, should benefits be directed, and on what basis? Who stands to gain from these exchanges, and who will lose? As these questions indicate, it would be an understatement to call prospecting a controversial issue. It is deeply polemicized terrain, in every way. The politics and practice of prospecting are being battled out in sustainable development treatises and policy platforms, in indigenous working groups within the UN and on activist websites, and in world intellectual-property tribunals. But these debates are also taking material shape in, around, and through the myriad benefit-sharing prospecting enterprises that have been put into play across the globe since the early 1990s. These agreements take a range of forms, from large, multi-institutional collaborations to simple bilateral contracts; from agreements that seek to bring indigenous communities into the fold to those that collect exclusively in government-controlled lands and channel benefits back to national biodiversity institutes.

When Nature Goes Public is an ethnography of a prospecting agreement between the United States and Mexico, and of the complicated and contradictory practices mobilized in its name. The agreement on which I focus links a team of plant researchers at Mexico's National Autonomous University (UNAM) to the University of Arizona and its industrial partners in the United States. As members of a larger collaboration funded by the U.S. government's International Cooperative Biodiversity Groups (ICBG) program, UNAM researchers send extracts of Mexican medicinal plants to the pharmaceutical company Wyeth-Ayerst. In ex-

change they receive, from Arizona, minimal research funds and promises of a percentage of royalties, ten to twenty years in the future, should those companies develop a drug or pesticide based on Mexican specimens. Crucially, this project is also designed to collect ethnobotanical knowledge about plant uses, and to direct some of the royalties back to the people or communities from which this intellectual resource is culled.[1]

The unexpectedly generative effects of this promise of redistributed value lie at the heart of this ethnography. This generativity will not, I should reveal from the outset, be found in the emergence of a blockbuster drug and a stream of royalties to indigenous benefit-recipients: to date, no product has even made it into the pipeline, and key participants concur that a drug is indeed among the *least* likely results of this collaboration to pan out. There are, however, reasons to keep reading. As we shall see, the promise and threat of prospecting and its redistributive potential have sparked some curious and circuitous webs of possibility, connection, and truncation.

The Promise and Threat of Bioprospecting

Some of the earliest and highest profile benefit-sharing enterprises—such as those instituted by Shaman Pharmaceuticals, the now-defunct San Francisco based company[2]; the ongoing, U.S. Government ICBG initiative (of which the U.S.-Mexico contract we will read about here is a part); or a 1991 agreement between the drug company Merck and Costa Rica's National Biodiversity Institute (INBio)[3]—have trumpeted some fairly lofty goals. The promise is no less than one of harnessing the (earning) power of corporate drug discovery and feeding these profits back into biodiversity conservation, rural and indigenous community development, and scientific infrastructure-building in developing nations. They have in short promised not just benefit sharing, but the world, or at least that kind of world "brought to you by Merck" on National Public Radio in the United States: more drugs, more health, more biodiversity, more funds for cash-poor developing nations, and more economic resources to communities who are the traditional stewards of biodiversity.

Against this heady set of promises, critics of bioprospecting in Mexico and internationally argue that these contracts hardly hold the promise to reverse the (neo)colonialist histories of resource extraction on which northern nations and corporations have built profits, empires, and nations. To the contrary, these exchanges seem to many skeptics like a dressed-up version of the same old "biopiracy" (see Shiva 1993; Kloppenburg 1991; Harry 2001). In protest against one recent project in Chiapas, Mexico, an indigenous representative from one of the affected communi-

ties argued, "[this] project is a robbery of traditional indigenous knowledge and resources, with the sole purpose of producing pharmaceuticals that will not benefit the communities that have managed and nurtured these resources for thousands of years. . . . [It] returns almost nothing in exchange."[4] Certainly, one of the central paradoxes of these agreements is that benefit-sharing provisions, offered by their proponents as a form of redistribution of wealth and technology, or even as an ethical act, only make more explicit the historically entrenched gaps in power of the actors involved. Royalties, in the amount deemed acceptable to participating companies (usually in the range of 1 to 10 percent) are not up to the task of mediating the complex histories and futures of inequality into which prospecting interjects, and in which it is deeply implicated. Instead, these promises merely seem to amplify—broadcast, but also exacerbate—those inequalities. As such, bioprospecting lays bare some of the defining contradictions of contemporary neoliberalism and its successor projects: the promises of a millennial capitalism (Comaroff and Comaroff 2000), crosscut by the powerful sense, in Latin America as elsewhere, that such offers of market-mediated inclusion or enfranchisement also contain within them the conditions for unprecedented degrees of exclusion and stratification.

Nowhere has this double vision—prospecting as a promise/threat—been made more vivid than in Mexico in recent years. Starting in late 1998, Mexico became home to some remarkably effective activist campaigns (local, national, and international) against several prospecting collaborations taking place within and across the borders of the Republic. Strikingly, the project on which I focus in this book has managed to avoid most of the controversy (I will discuss this in later chapters). But the controversies surrounding a sibling project, the now-defunct Maya ICBG in Chiapas—a U.S. government-sponsored initiative to use "Mayan" traditional knowledge and remedies as leads for biotechnology research in exchange for promises of future community development funds—have placed Mexico at the center of an international firestorm around the ethics and practice of bioprospecting, particularly where indigenous knowledge and communities are concerned.

As I'll discuss at greater length in chapter 3, the mobilizations against the Maya ICBG by Mexican intellectuals and activists, a group of traditional healers and midwives in Chiapas, and international organizations such as RAFI (Rural Advancement Foundation International, now the Erosion, Technology, Concentration group [ETC]), have pointedly questioned the legitimacy of Mexican public universities and research institutes acting as "brokers" for both national and indigenous resources. In the absence of any definitive national legislation (a law on the matter has

been under discussion in the Mexican legislature since 1997), they ask, Who has the right to sell such access to U.S. and European researchers and companies; and more pointedly, Is it possible at all for these agreements to transpire in a fair and equitable manner? The protests surrounding this contract have effectively and officially put a halt to the Maya ICBG project. The demise of the Maya ICBG (along with associated mobilizations against several other collaborations) has placed into question the viability of all current prospecting projects in Mexico, including the Latin America ICBG on which this ethnography focuses.

The future of benefit-sharing contracts in Mexico now looks tentative, at best—a remarkably different situation than the one I found when I began my research in 1996. At that point, bioprospecting barely registered on Mexican activists' radar, though a few agreements, including the one documented here, were certainly up and running and hardly hidden from public view. The subtitle of this book, in its reference to the making and unmaking of bioprospecting, refers in part to this very real sense of a rise and fall in the fortunes of these kinds of collaborations in Mexico, as well as internationally.

This book is an account of bioprospecting "in the making" in a literal sense: the Latin America ICBG, on which this analysis focuses, was in its inaugural phase in Mexico in 1996 and 1997 when I conducted my initial ethnographic research. The study is thus based largely on observations made during a distinctive, formative window in the history of a longer-term project. This perspective affords, as we shall see, particular insights into the processes through which prospecting's tenuous circuits of exchange are established. And, it also provides a window into a distinctive moment in the public profile of prospecting in Mexico and internationally. It was a moment (it turns out) of relative calm, but as we shall see, the specter of protest and activist mobilizations loomed large for the Mexican researchers implementing the agreement on which I focus. This anticipation, I will argue, has gone a long way in helping shape the contours of that collaboration.

But the reference to prospecting's making and unmaking is not just meant to signal a retrospective (and closed-off) sense of "trajectory." It is also meant to signal something "in the works," an indeterminate and multiform process—a sense of the unexpected twists and turns that we encounter when tracking the processes set in motion simultaneously *in the name of* and *despite* prospecting's fragile promise of equitable returns. As this ethnography will show, the road to such forms of participation and reciprocity is bumpy indeed, and it leads us to places we might not expect.

Prospecting in Public

Before previewing where we will find ourselves, a quick word on where we will not. This book is not an ethnography of indigenous knowledge practices, communities, or "local knowledge" in any conventional sense. Nor is it an account of corporate drug discovery per se. One of my aims is to explore the unsettled relationship between a prospecting collaboration and its (oft-imagined) constitutive subjects and objects. As we shall see, bioprospecting is not merely a "channel" along which travel local knowledge, biodiversity, and community or even corporate interests. Rather, these contracts are implicated in producing, invoking, and giving shape to these subjects, objects, and interests in the first place.

This ethnography of prospecting is, primarily, an ethnography of science: it treats scientific research practices as key points of entry into prospecting's play of resource extraction and compensation. At the center of this analysis are the UNAM ethnobotanists and chemists who are implementing the Latin America ICBG in Mexico. These researchers are both mediators of and participants in this international collaboration, and their research practices are crucial sites of political negotiation. When the UNAM ethnobotanists collect plants, they are also collecting benefit-recipients; when the UNAM chemists test collected plants for their industrial potential, they are also helping broker new kinds of distribution of industrially mediated "value." In this context, routine decisions about which plants to collect, or what kingdom to scan for potential value, become inextricably laced with the explosive question of who shall become the "beneficiaries" of a new international politics of biodiversity entrepreneurialism, and on what basis.

It is precisely because of the newly delicate nature of these negotiations that the "routine" sites where we *will* find ourselves may seem anything but routine. Following the UNAM scientists "in action" will take us not to indigenous healers but directly to city centers across the north of Mexico—in particular, to the urban marketplaces that are teeming with Mexican biodiversity. We will find ourselves not in uncharted territory but traveling well-worn routes, as these researchers retrace both their own steps and those of the collectors, miners, and colonial explorers whose pathways are intimately bound up in "Mexican biodiversity." We will become acquainted with both the complex information-management protocols and the very distinctive laboratory animals through which plants must pass if their pharmaceutical value is to be activated—and thus, if their redistributive potential is to be actualized.

It is my aim to show how, in these practices, sites, and relationships, as much as in the negotiations among nations and corporations, we see the

generation of lines of inclusion and exclusion within prospecting's tenuous circuits of exchange. One of the central tasks animating this analysis is thus to explore how a benefit-sharing contract transforms and is transformed by scientific research practices and relations between these scientists and the local people—urban plant vendors, indigenous collectives, rural collectors—whose interests they now represent. In other words, my task is to understand how scientific practices are, in the context of benefit-sharing agreements, being asked to do new and explicit kinds of political work.

The title of this work is meant to flag this question of the political work that science does. On one level, the "public-ization" of nature refers to a key concern that has emerged out of my ethnography; namely, that the public domain has proven to be an extraordinarily rich site of valuable biodiversity for the UNAM researchers, over and against places marked as "communities." Purchasing plants and knowledge in urban markets, clipping specimens on the sides of the road, culling knowledge from published ethnobotanical literature—these decisions about where and how to identify promising plant material have some thick disciplinary legacies. At the same time, when they are injected into a benefit-sharing contract, they take on some distinctive levels of complexity. What are the consequences—politically, materially, and analytically—of the UNAM scientists' decisions to prospect in the public domain? I am particularly interested in the challenge this strategy poses to the vision of bioprospecting's subjects and objects that is held by prospecting advocates and critics alike: the UNAM ethnobotanists powerfully disrupt the notion of authorship animating the idea of compensating people for their knowledge, and the idea of "communities" having a distinctive claim on something called "local knowledge." Implicitly, I argue, they also ask social scientists, conservationists, and activists, among others, to rethink how and to what ends local knowledge is invoked as a basis of enfranchisement and participation.

The construction of public domains as collecting sites, with an eye toward the political entanglements that they ostensibly contain or avoid, is thus one of the "publics" to which my title refers. But "going public" has another valence of course, resonant with the language of corporate capitalization strategies. When a company goes public, it opens itself up to public ownership by selling stock to individuals who "buy in." Going public is a way to raise money, but this kind of capitalization also comes with multiple (and often illusory) promises attached: publicly held stocks promise a kind of inclusivity (conceivably, anyone can buy in), certain modes of corporate accountability to shareholders, and dividends in the future. The first generation of bioprospecting agreements that emerged in the early 1990s was quite explicitly being proposed in such terms.

We will see in chapter 2 that the policy makers and scientists who envision prospecting as a conservation strategy, including the directors of the

ICBG program, effectively frame it as a strategy for taking nature "public"; they do so by posing biodiversity as an economic resource that can bring dividends to a wide range of prospecting participants, including pharmaceutical companies, governments in biodiversity-rich nations, and the local people who are envisioned as the ground-level "managers" of natural resources. Prospecting is explicitly figured as a way to increase the number of stakeholders and managers in biodiversity (World Bank 1997; McNeely et al. 1990). Consider, for example, the much commented upon creation of a corps of "parataxonomists" by Costa Rica's prospecting engine, INBio: these Costa Rican citizens, retrained en masse in field collection and taxonomic practice, are meant to serve as an autochthonous workforce for INBio's ambitious inventorying and prospecting endeavors. But they are also key emblems of the Institute's efforts to produce a diffuse Costa Rican investment in biodiversity itself. Two of the Institute's chief architects explain: "INBio assumes that Costa Rica's biodiversity won't be highly valued and appropriately managed in the long run unless the Costa Rican populace on whose lives it will have the largest . . . impact are involved" (Sittenfeld and Gámez 1993: 85; see also Takacs 1996). When these parataxonomists' labors "add value" to the resources that leave the country, they also, Sittenfeld and Gámez assume, become stakeholders themselves.

Along with this language of stakeholding comes a certain provisional language of representation and participation, expressed through the intertwined idioms of compensation, investment, and incentive-building. Rural people, "third world" scientists, developing country governments, and even pharmaceutical companies are all encouraged to buy in to the globalizing project of biodiversity conservation with the promise of dividends dangling in the future.

This book shows how these market-mediated languages of social action, participation, and inclusion are bearing out in the context of bioprospecting in Mexico, and to what effect. In so doing, it aims to help us understand scientific knowledges, practices, and even research methodologies, as intimately entwined in prospecting's neoliberal modes of participation. As I'll discuss at length in chapter 1, this question points us beyond the horizons identified in many recent and insightful critiques of the commodification of science. Many chroniclers of the life sciences have pointed to momentous shifts in the relationship between science, industry, and regulatory bodies in the United States (and parts of Europe) since the early 1980s, when the Reagan and Thatcher administrations helped pave the way for current trends linking molecular biology research and biotechnological research and development (Etzkowitz and Webster 1995; Wright 1994; Rabinow 1996; Yoxen 1981). Increasingly, direct links between university researchers and corporations (as well as venture capitalists)

have contributed to a sense that knowledge itself is being "capitalized" (Etzkowitz and Webster 1995: 488).

Bioprospecting provides an opportunity to understand what the "capitalization of knowledge" means, not only for the structure of research and development in the United States and Europe, but in much wider terms. In the context of bioprospecting, scientific knowledge is not simply capitalized; it is politicized in the very particular sense of being inscribed with specific kinds of accountabilities, social relations and potential property claims, and interests. We might say it is neoliberalized—a state of affairs which, I argue in chapter 1 and throughout this book, holds implications for prospecting politics and social theory alike.

Sites

Looking to science as a site of anthropological analysis has prompted much reflection on the nature and implications of conducting multisited research (Marcus 1995; Fischer 1999; Downey and Dumit 1997). The move away from conventional ethnography, fixed in one locale, has been identified by some chroniclers of anthropology as a necessary adjustment to the rapidly moving world that we set out to understand, and in which we live. As George Marcus argued in 1995, the old concerns of anthropology are playing out in, and creating, new spatial canvases, and our commitment to understanding those processes up-close, and in all their quotidian detail, means discovering new paths of connection: "[e]mpirically following the thread of cultural process itself impels the move toward multi-sited ethnography" (Marcus 1995: 3, 6). Whereas this kind of research is indeed relatively novel in relation to anthropology's time-honored conventions (though arguably, the processes of movement that we purport to track are not themselves altogether new), the ethnography of science has always had a hefty dose of "multi-sitedness" built into it.

An iconic interest in laboratory-based practices notwithstanding, sociologists of science have been particularly concerned with the ways that knowledge is constituted *in travel* across domains both geographic and institutional.[5] One of the crucial analytical apparatuses that has been used in science studies, and especially in the Actor-Network Theory (ANT) elaborated by Bruno Latour and Michel Callon (among others), to talk about this kind of multisitedness is the notion of the network, by which they mean the more or less robust constellations of people, things, institutions, and interests that literally constitute scientific knowledge and artifacts. As I'll discuss more in chapter 1, the idea of the network serves, in science studies, as a methodological imperative (see Riles 1999).[6] If every scientific fact or research object is itself full of hidden, or latent, networks

of people, institutions, and objects, then it is the job of ethnographers of science to make them visible—that is, to trace outward the webs of relationships and objects through which knowledge about nature is granted the status of fact. And in order to do this, we must take an open-ended approach to following science and scientists "in action," rather than assuming in advance who or what the relevant people, things, and institutions are that will give this knowledge its authority (Latour 1987). You cannot, in this view, always know where a network will lead.

Certainly, prospecting seems tailor-made for a multisited analysis of scientific networks. After all, the UNAM-Arizona agreement, and the ICBG project of which it is a part, is literally a study in traveling knowledges, research objects, and resources, as it seeks to channel Mexican plants and knowledge from the countryside and rural communities to the sprawling campus of UNAM in Mexico City; from UNAM to U.S. corporations and the University of Arizona; and from these U.S. sites back to various agencies, institutes, and communities in Mexico. In a very material sense, this set of institutional nodes indeed provides the architecture of my study. Yet, unlike some prominent multisited anthropological work, I did not conceive of this project in terms of "following" one kind of thing, actor, or knowledge across an already given, if also dispersed institutional landscape (Appadurai 1996). And, unlike a straightforward science studies approach, I am not concerned here primarily with using the idea of the network to explain or reveal the interests that lie behind or within the knowledge and nature produced here.

Rather, my task is that of tracking the ways in which biodiversity, local knowledge, and even interests themselves come to be constituted as such through their very articulation with a bioprospecting contract. And certainly, the shape of this institutional configuration has taken a few unexpected and contested turns in its articulation with the Mexican scientists' preferred research methods and collecting sites. There are, in other words, some significant ways in which both this prospecting agreement and its subjects and objects emerge in relation to each other—even when they do not (quite) meet.

My analysis of this oft-truncated, slightly choppy "network" draws primarily on fifteen months of ethnographic research, with the bulk of my time spent in the many sites within Mexico that were being figured as existing or potential nodes in this prospecting collaboration. After preliminary research in the summer of 1995, I returned to spend the year from August 1996 to August 1997 in Mexico. I was based in Mexico City, home to UNAM and the government agencies that regulate prospecting-based collecting activities, and I also conducted research in several key collecting sites in the northern states of Chihuahua, Sonora, and Durango. I began my work with the members of the UNAM ethnobotany and chem-

FIGURE 1.
Map of Mexico

istry departments involved in the prospecting project, and I continued to work closely with these scientists throughout the year. This meant spending a great deal of time in the ethnobotany labs and the chemistry labs. I conducted taped interviews with Drs. Bye and Mata, while most of my time was spent with the biologists, ethnobotanists, and chemists working under them.

I also accompanied the ethnobotanical research team on their collecting trips to the north of Mexico. These field excursions were crucial parts of my research. Not only did these trips teach me an enormous amount about ethnobotanical collecting practices, they also offered the opportunity to be a part of a complicated, early stage of the prospecting project, in which Bye's team was laying the groundwork for establishing relationships with "local participants." These were, of course, formative moments in the fashioning of this emergent if not, as we shall see, choppy network of resource providers and potential long-term claimants.

I later returned, on my own, to some of the urban markets and rural communities where the UNAM ethnobotanists had traveled to collect plants and establish contacts. I went to these sites to gain a better sense of the contexts into which emissaries of this prospecting project entered and left in short but frenzied bursts of activity. And so I spent time in one urban market getting to know the vendors, some of whom had sold plants to these researchers, and some of whom had not had any dealings with them at all; I met and interviewed rural collectors who brought these plants to the cities; I stayed in two small towns where Bye was setting up projects (school improvement and community cultivation projects) as preliminary examples of the kind of benefit offered through this prospecting agreement, and I spoke extensively with the contacts with whom he was arranging these projects.

In May 1997, I participated in an international symposium in the Mexican Senate, designed to lay the groundwork for drafting national legislation on access to genetic resources. My research in Mexico City also led me to the offices of many public officials, researchers, activists, and graduate students at UNAM and other central Mexican universities, who taught me about the history and politics of ethnobotanical research in Mexico, its relationship to transnational pharmaceutical interests and current biodiversity politics, and the effects of national and international shifts toward neoliberalism and sustainable development in rural Mexico, among other things. In June, an ICBG annual meeting in Tucson gave me the opportunity to situate my analysis of this Mexican prospecting endeavor more fully in the context of the wider collaboration of which it is a part. There, I interviewed participating researchers from Arizona and the countries of Chile, and Argentina, as well as U.S. government officials and a corporate representative to the project. At this project meeting, a

remarkably dispersed network congealed, partially, in one place, allowing me to understand better how the resources and processes with which I was concerned in Mexico translate and travel as they enter other nodes of this project.

As many critical accounts of ethnographic work have suggested in other contexts, the very act of trying to "follow the networks" often makes us party to their materialization. I found, in many cases, that my own attempts to make this project an explicit object of attention and ground for conversation and shared analysis simultaneously had the effect of extending the webs of people for whom it would be a matter of interest in the first place. Many scientists and activists with whom I spoke in Mexico in the early years of my research had not heard much about the UNAM prospecting project, if anything at all—a situation that implicitly made me the project's "representative" in many interviews. In this way too I became an informant of a sort for the UNAM chemistry lab technicians, as my inquiries seeking to tie their practices to wider contexts gave them a warrant to ask me about what went on "over there" in ethnobotany, what the field excursions were like, and too, what was happening in other nodes of the prospecting project in the United States, Chile, and Argentina.

And, in my travels north to potential or actual "community sites," I became in many cases inescapably associated with the very project I was hoping to study, in the eyes of the plant vendors, collectors, and community members I first met while traveling with Bye's team. Though I tried to make clear that I was not part of that project but rather conducting my own independent research, this naïve attempt at boundary-making did little to sway some of these very generous men and women from treating me as Bye's emissary. And thus I found myself treading some strange ground, inescapably partaking of the benefits of Bye's good name and, perhaps, the promise of benefits (or purchasing power, in the case of market vendors) with which he was associated. This also meant treading with care in terms of my representations of the project itself or, if the question came up, Bye's intentions—for I had made a commitment that, should I go speak with people with whom he was beginning to set up relationships, I would not attempt to compromise or sabotage those efforts. And again, in this way, the prospecting network I was hoping to trace traveled with me.

Chapter Preview

The book is divided into three sections. The three chapters in part 1, "Neoliberal Natures," outline bioprospecting as a social practice and institutional formation; as such they also lay the groundwork for understanding the particular approach I've taken in this analysis. Chapter 1 explores in

greater detail the implications of framing an ethnography of prospecting as an ethnography of science; in the process, it also charts some of the institutional shifts in the political economies of "knowledge production," in the United States, Mexico, and internationally, that have prompted me to shape my inquiry in a certain way. The next two chapters lay out bioprospecting's conditions of possibility—and increasingly, its conditions of impossibility—in Mexico and internationally. Chapter 2 characterizes bioprospecting as a firmly neoliberal construction of both nature and human nature, in which globalizing models of intellectual property rights, proprietary local knowledge, and individual entrepreneurship figure strongly. Chapter 3 outlines the constellations of "risk," rights, and regulation that surround prospecting in Mexico. Alongside a discussion of legislative and neoliberal policy shifts that help constitute prospecting-mediated "governance" in Mexico, I outline the recent controversies over prospecting, as well as some of their historical precedents. Together, these discussions show how national and nationalist histories make an indelible mark on the shape of current prospecting practices.

Part 2, Public Prospecting, takes us on a detailed tour through some of the "public domains" named and mobilized in the UNAM-Arizona prospecting agreement, and thus aims to show how participating Mexican ethnobotanists' collecting strategies shape prospecting's contentious lines of inclusion and exclusion. This section revolves around the ethnobotanists' controversial decisions to collect in public domains—urban markets and roadsides—rather than in places marked as "communities." Chapter 4 addresses market collections, arguing that this strategy significantly upsets the intellectual property-inflected notions of compensation underwriting this prospecting agreement, while providing an opportunity to track how "local knowledge" is itself localized in the context of a benefit-sharing agreement. Chapter 5 moves to roadside ditches and highway shoulders across the north of Mexico, weaving a profile of the kinds of value, knowledge, and property claims that are both enabled and disabled through collecting in this heterogeneous "public" space. I investigate these sites as newly desirable sources of biodiversity, as places that researchers identify (with much hope) as being laden with enhanced biochemical promise and relatively few political entanglements. These chapters thus address the question of prospecting in public through an exploration of what these choices of collecting sites both disable and enable: what kinds of knowledge about "nature" are produced through collecting in these sites and not others, and what modalities of enfranchisement emerge as well as recede here.

Part 3, "Prospecting's Publics," articulates the long-standing, corroborative project of transforming "folk knowledge" into pharmaceutical value with the novel conditions of a benefit-sharing agreement, in which

the providers of such knowledge are to be rewarded for their contribution to patentable drugs. My focus here is less on how scientists determine the insides/outsides of prospecting networks than on how we might understand different actors' proximity to the industrially mediated value that looms promisingly on the horizon within prospecting collaborations. Chapter 6 approaches this question through a detailed analysis of the history and politics of a particular test organism (the humble brine shrimp) inhabiting the Mexican chemists' laboratories. Brine shrimp turn out to be uniquely efficacious tools for producing these translations between the "vernacular" and the pharmaceutical; as such they serve as key mediators in the production of potential claims to entitlements, both for these chemists themselves and for the rural interlocutors whose interests they are to represent. Chapter 7 traces how ethnobotanical knowledge fares as a shortcut to drug discovery and a token of myriad potential interests and claims. In so doing, it illuminates the powerful effect not of property claims themselves, but of the threat of property out of place: the agreement's internal confidentiality provisions keep ethnobotanical information out of the hands of the participating companies, in effect interrupting the networks along which ethnobotanical knowledge and the local interests it represents are supposed to travel.

With this book, I hope to make a distinctive intervention into some complex and highly polemicized terrain. The effects of bioprospecting contracts are far from straightforward; indeed, the kinds of alliances and modes of resource appropriation undertaken in their name might surprise us. A cavalier or even deeply committed dismissal does not help us understand the practices and relationships, the interests and investments, and the kinds of social action and knowledge production that are unfolding in the name of bioprospecting and in the shadow of its promises. The analysis I present here is devoted to understanding these processes.