

INTRODUCTION

## *Hunters and Gatherers in the Twenty-First Century*

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### **Introduction**

Prior to the onset of the Holocene about twelve thousand years ago, humans shared the globe only with other hunter-gatherers and made their living exclusively by collecting wild resources.<sup>1</sup> With domestication, some foragers transitioned to agriculture and pastoralism. But this transition was not inevitable. Many hunter-gatherers continued to forage, while others pursued a mixed economy combining wild resources with the low-level use of domesticated plants and animals. By the 1960s hunter-gatherers were estimated to represent 1 percent of the world's population (Lee and Devore 1968). Due to rapid population growth, habitat transformation, and globalization, that percentage is far smaller today. But one thing is certain: hunter-gatherers are still here.

Foraging persists in the contemporary world as a viable economic strategy in remote regions as well as within the bounds of developed nation-states. This fact frames the central question we address in this book: given the economic alternatives available in the twenty-first century, why do some choose to maintain their hunting and gathering lifeways? Rather than viewing the decline in hunting and gathering as conclusive, the contributors to this book examine the decisions made by modern-day foragers to sustain a predominantly hunting and gathering way of life. In this introductory chapter, we briefly discuss the history of hunter-gatherer research, present the current status of some hunter-gatherer populations, and outline the main findings discussed in this book (figure I.1).

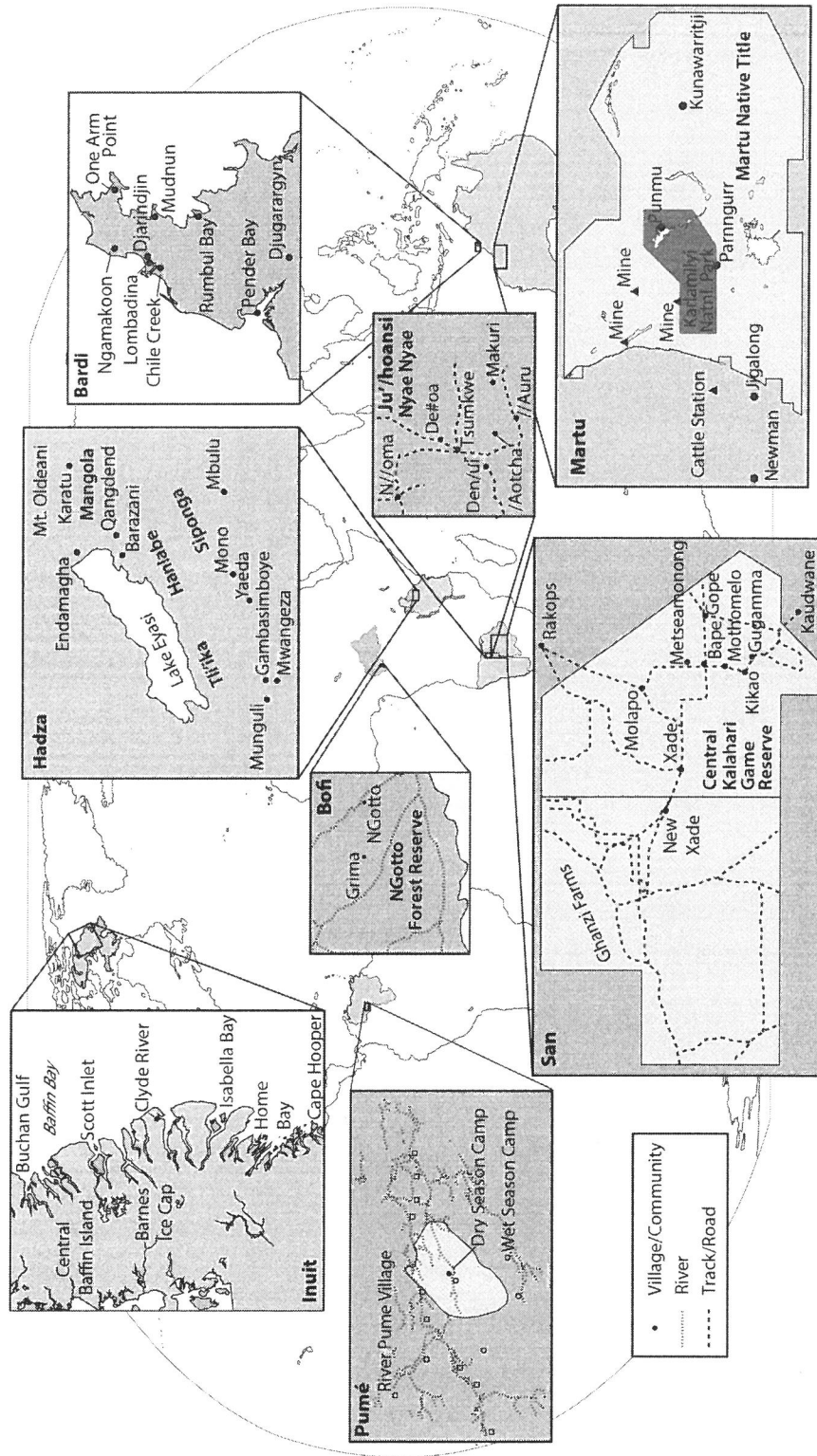


Figure I.1. The global distribution of hunter-gatherer populations discussed in this volume with inserts highlighting locations mentioned in each chapter. Map by the authors, compiled by Ellyse Simmons.

## Hunter-Gatherer Studies

The study of hunter-gatherers is thoroughly treated in a number of recent and classic publications (Bettinger 1991; Binford 2001; Ingold et al. 1988; Kelly 2013; Lee and Daly 2005; Lee and Devore 1968; Panter-Brick et al. 2001; Schrire 1984; Winterhalder and Smith 1981). Here we focus on those historic aspects that have shaped contemporary views of foraging economies and were instrumental in launching our seminar and book on twenty-first-century hunter-gatherers.

As European explorers, naturalists, and colonizers began traveling the world, they returned with stories, artifacts, and descriptions of other cultures. Hunter-gatherers entered the public's imagination as people who were living in either a Rousseauian heaven or a Hobbesian hell. Scholarly interest in hunter-gatherers, however, languished. Until the late 1800s, antiquarians were interested in Egyptian, Greek, Roman, and Chinese history—the visible archaeological and spectacular artistic human achievements. But as anthropology distinguished itself as a discipline in the latter part of the nineteenth century, ethnographic depictions became more probing and detailed, emphasizing the cultural uniqueness of different societies (Boas 1888a; Roth 1899; Smyth 1878). This particularistic view shifted again in the late nineteenth and early twentieth centuries with the resurgence of evolutionary thinking, which placed an emphasis on the relationship between environments and cultural variation (Kroeber 1939; Steward 1936, 1938; White 1959). While links between environmental, biological, and cultural variation remained largely descriptive through the mid-twentieth century, as anthropologists working in different parts of the world began to compare ethnographic notes, researchers recognized that more exacting field methods and quantitative analyses were needed to make meaningful cross-cultural comparisons.

The watershed “Man the Hunter” conference in 1966 brought together anthropologists working with foragers in Africa, Australia, South and North America, and the Arctic and Subarctic (Lee and Devore 1968). When researchers compared their empirical observations from different regions of the world, it was clear that hunter-gatherers lived in very different environments and that no one group encapsulated all of this variation. Their appreciation of this diversity raised questions about the degree to which women worked, how much time hunter-gatherers spent in subsistence activities, and assumptions about the importance of meat. These questions invigorated the synthetic study of hunter-gatherers, eventually giving rise to the ethnoarchaeologically and ecologically oriented research of the 1970s and 1980s (Binford 1977, 1984, 2001; Binford and

O'Connell 1984; Gould 1967, 1968, 1978, 1981; Lee 1979, 1984; O'Connell 1987, 1995; Oswalt 1973; Yellen 1977). Inspired by new theoretical (e.g., MacArthur 1972; MacArthur and Pianka 1966) and methodological (e.g., Altmann 1974) work in biology, these research programs brought ethology, behavioral observation, and systematic demographic and biological methods to the study of human foragers (Altman 1987; Hames and Vickers 1982; Hawkes et al. 1982; Howell 1979; Kaplan and Hill 1992; O'Connell and Hawkes 1981, 1984; E. Smith 1991; Smith and Winterhalder 1992; Winterhalder and Smith 1981).

Alongside these developments in hunter-gatherer research, new hominin fossils were being discovered in Africa, Asia, and Europe (Klein 2009). In order to understand variability in the hominin fossil record and the origins of our species, researchers turned to contemporary foragers to shed light on past hunter-gatherer adaptations (Harding and Teleki 1981; Isaac 1978; Lovejoy 1981). Living hunter-gatherers again came to be seen as relics of the past, models who could breathe life into the fossil record. Scholarly interest in hunter-gatherers grew because "they represent an ancient stage of human culture—a living snapshot of human life in its oldest, more primitive state" (Bettinger 1991:1). The further people lived from what was considered a "pristine" setting, the less useful they were for explaining past hunter-gatherer adaptations. The problems inherent in this line of thinking and in defining what is a pristine or true hunter-gatherer are obvious. The inevitable end point of this perspective is to conclude that "the very subject matter of . . . investigation is disappearing" (Burch 1994:442). One of our incentives for convening a group of researchers at the School for Advanced Research (SAR) was to counter this misconception about hunter-gatherers and hunter-gatherer studies and to discuss the state of foraging in the twenty-first century.

#### COMMON MISCONCEPTIONS ABOUT HUNTER-GATHERERS

Several commonly held academic and popular suppositions about foragers reflect this focus on the "untouched" hunter-gatherer. First, modern hunter-gatherers are frequently cast as a direct analogy to people living in the past, often millions of years ago, without attention to those attributes that have likely persisted, changed, or are environmentally sensitive or plastic (Hill et al. 2014; Marlowe 2010). Because hunter-gatherers live closer to the energetic, technological, demographic, and social conditions of the past than do people living in most agricultural and urban settings, they allow us to observe how humans



spend their time, make a living, grow up, reproduce, and die under these conditions. But they are not relics of the past. This distinction is a subtle but important one that Binford (1977, 1984, 1985, 1988) and others (e.g., Schrire 1984) have explicitly and forcefully made. Some modern traits have a deep ancestry, while others are the outcome of more recent changes. For example, many derived human life history traits—such as early weaning, short birth intervals, multiple overlapping young, improved juvenile survival, and long life-span—have been evolving over the last several million years. Consequently, life history traits observed in contemporary foragers may not adequately reflect the selective pressures that produced derived behaviors such as food sharing, cooperative breeding, pooled energy budgets, non-kin cooperation, pair-bonding, and male parental investment (Kramer and Otárola-Castillo 2015). Other density-dependent behaviors, such as broad-spectrum foraging adaptations (Flannery 1969; Morgan 2015; Stiner 2001), may not emerge until more modern demographic pressures arise.

Skepticism that the present is a direct analogy of the past leads to our second point that a characterization of hunter-gatherers as isolated from the forces of change obscures what hunter-gatherers are best at—flexibility. Hunting and gathering is successful because it incorporates many dietary and social options, not because it excludes them. Hunter-gatherers have been making decisions about whether to diversify and replace traditional resources and strategies for as long as they can be identified in the archaeological record. Throughout the Pleistocene, foragers adopted novel technologies, intensified their resource base, and moved into an ever-increasing number of environments (Klein 2009). Sometimes they added new resources or strategies to their diet, and sometimes they replaced previously traditional foods and technologies. Since the advent of domestication approximately eleven thousand years ago, hunter-gatherers knew of and had contact with neighboring food producers. Likewise, the ethnographic record indicates that foragers often live in close proximity to and interact with food producers without themselves becoming food producers (B. Smith 2001). Thus, hunter-gatherers have always made decisions about what to change and retain in their lives.

Third, the ideal of a pure hunter-gatherer, uncontaminated by outside influences, is at odds with the archaeological and ethnographic records. Contemporary foragers, like those in the past, live in an ecologically but also a socially dynamic world. Long-distance exchange networks have been identified archaeologically by the Upper Paleolithic in parts of Europe and Asia and by the

Middle Stone Age in Africa (Shea 2011:T2). This research often focuses on non-food items, but we also have evidence that different food economies have been interacting for a long time. Transitions from the first use of cultigens visible in the archaeological record to systems reliant on domesticates often occurred across several thousands of years (Piperno and Pearsall 1998; Richerson et al. 2001; B. Smith 2001; Winterhalder and Kennett 2006). By at least eleven thousand years ago, foragers shared regions of the world with people pursuing very different subsistence strategies. Moreover, we have archaeological evidence of hunter-gatherers persisting long after agricultural societies began to expand (Bollongino et al. 2013; Jochim 1998). Exchanges between hunter-gatherers and non-hunter-gatherers are also well documented in the historical record. Best-known cases include the Ituri and Philippine foragers and farmers (Bailey and Auger 1989; Hart and Hart 1986; Headland and Bailey 1991; Peterson 1978). While the origins of domestication literature often emphasizes an inevitable transition from foraging to agriculture following access to cultigens, what is interesting about relationships between farmers and foragers is that they are often long term and stable (Lupo, chapter 6). In other words, foragers do not necessarily become farmers because of their interactions. Archaeological and historical evidence suggests that many aspects of a hunting and gathering life-way are worth conserving, and transitioning to another mode of subsistence can be uncertain.

While modern hunter-gatherers often are portrayed as Stone Age people, especially by nonspecialists who may be unfamiliar with contemporary debates, this portrayal obfuscates what is really interesting about them: hunters and gatherers have always lived on a transitional landscape, adapting to new social and environmental conditions, interacting with and being influenced by other groups and new ideas, and making decisions about what is worth retaining from and changing about their subsistence economy and social organization. Hunting and gathering has been a successful strategy throughout human history because it incorporates a broad array of food acquisition strategies and social behaviors. Modern foragers are part of this continuum, making economic and lifestyle decisions as they are exposed to novel situations. This opens the door to a more dynamic study of hunter-gatherers in the twenty-first century.

## Hunter-Gatherers in the Twenty-First Century

As they have always been, hunter-gatherer lifeways today are highly variable and adaptable. Some rely more heavily on traditional technologies, subsistence practices, and social networks, while others have incorporated novel technologies, foraging strategies, and social interactions. Regardless of the level of change in their daily lives, however, all twenty-first-century hunter-gatherers now live within nation-states. Some groups have been encouraged or forced into permanent settlements by governments, nongovernmental organizations (NGOs), or missionaries. Others live in countries that provide economic, health-related, or educational subsidies. Still others are virtually unrecognized by national or regional governments and have no interaction with health-care providers, educational systems, or the market economy.

Although they may have economic autonomy, many hunter-gatherers do not have a political or legal voice within their governing state. In some cases nations or NGOs, intentionally or not, have facilitated the integration of hunter-gatherers into regional and national economies and the wage labor market. In many cases, hunter-gatherers have no legal or exclusive rights to land, and their territories have been opened to multinational corporations and tourists. Intrusion by outsiders may lead to conflicts of interest between foraging populations and national governments, which enforce policies that restrict access to land, resources, or cultural practices.

Although these contemporary parameters have altered the conditions under which hunters and gatherers find themselves today, they do not keep us from learning about subsistence decisions and their social implications in these populations. Indeed, current conditions pose a number of intriguing questions. For example, the persistence of wild food subsistence in combination with non-foraged elements provides valuable information and presents a kind of natural experiment about how foragers make decisions. The contributors to this volume evaluate how individuals within traditional foraging populations respond to these impacts, which may be predominantly economic, social, regulatory, or some combination thereof, depending on the specific case.

### WHO AND WHAT THIS BOOK IS ABOUT

Although we do not pursue typological issues in this volume, we do need to clarify who this book is about since all human societies have an ancestry in

hunting and gathering and many economies today incorporate some elements of foraging. Most agriculturalists and horticulturalists, for example, also collect wild resources. Some well-known examples include the Yanomamo, Tsimane, and Machiguenga peoples. Indeed, foraging has recently increased in popularity even among urban elites (e.g., Cook 2013; Pollan 2007). Our intention is to focus on groups who were historically hunter-gatherers, who today rely on wild resources to sustain their livelihoods, and with whom researchers are currently working.

The seminar convened experts working with hunting and gathering populations in diverse locations (figure I.1) to attempt to understand how hunter-gatherers adapt in a transitional world and why some choose to remain foragers. Some of the seminar's participants have lived and worked with hunter-gatherers for much of their long careers and were instrumental in shaping the field by bringing a scientific perspective to hunter-gatherer research. Others built on this pioneering approach by expanding the analytic and comparative methods used, the kinds of questions asked, and the range of groups studied. All authors have in common a focus on human behavior. Most were trained in ecological and evolutionary approaches to human behavior, and emphasize quantitative methods, hypothesis testing, and the analysis of individual decision making. In working and living with modern hunter-gatherers, one cannot avoid the effects of institutional and market forces. Rather than emphasizing change as cultural degradation, or ignoring it altogether, each contributor examines the interactions between external forces and the internal decision making of hunter-gatherer groups.

The groups included in this book live in diverse social, economic, and ecological landscapes. All were traditionally full-time hunter-gatherers. Today, many of their calories still come from hunting and gathering, while the groups vary in how much they are involved with state programs and are impacted by market integration. Not surprisingly, these differences tend to correlate with whether a group lives in a developed or developing nation and how exposed they are to governmental, NGO, and anthropological influences. On one end of global and market influences are the Pumé, who live independently with no medical or economic support and negligible governmental or market contact. The Bardi, Inuit, Martu, and Namibian San are on the opposite end of this continuum and rely on state programs that operate in indigenous communities and, to varying degrees, provide wage labor jobs. The Botswana San, Bofi, and

Hadza live at an intermediate level of global integration, engaging with some forms of labor and trade but limited to no support from government entities. Despite differences in the availability of health care, new technologies, and financial subsidies, hunting and gathering remains at the core of each group's subsistence and social life.

#### BOOK ORGANIZATION AND QUESTIONS

Why do some people around the world maintain a hunting and gathering lifestyle? Does the fact that most people today subsist in other ways suggest that other economies offer better alternatives to foraging? Through a series of detailed case studies, this volume examines what economic and social elements hunter-gatherers retain and what they adopt in today's rapidly changing global environment. In short, what are the costs and benefits of different foraging decisions in a transitional world?

In addressing this question, we asked authors to write lengthier ethnographic background sections than normally appear in academic journals so that the book can serve as a compendium of the current conditions of modern hunter-gatherers. Because text space is limited, however, attributes that can be quantified are summarized in two extensive tables at the end of the book. One table summarizes social organization and demographic variables (Kramer et al., appendix A), and the other economy and subsistence variables (Greaves et al., appendix B). These are intended to be useable by readers for cross-cultural comparisons.

Some commonly thought-of hunter-gatherers are missing from this volume, in part due to the unavailability of researchers to attend the conference and in part because of the limitations of book length. We have tried to compensate for this by including as many modern hunter-gatherers as possible in the economic table at the end of the book (Greaves et al., appendix B). We apologize in advance for any oversights.

#### **General Themes: Benefits of Foraging, Costs of Not Foraging**

Given the economic alternatives, why forage? From this central question, several themes emerged during the seminar. We focus on two of these: the economic benefits of foraging and the social costs of not foraging. While much has

changed for many contemporary hunter-gatherers, these case studies reveal the resilience of their diet and medicinal knowledge and, most of all, their sharing relationships and social organization.

All the chapters explore reasons for maintaining traditional subsistence and social practices and the degrees to which these are maintained. The foci of individual chapters, however, vary. Some are overviews or retrospectives (Blurton Jones, chapter 5; Hitchcock and Sapignoli, chapter 4; Lee, chapter 3; Wenzel, chapter 2) and reflect on the long history of research and intellectual debates in the Arctic and Africa. Other chapters (Bliege Bird et al., chapter 9; Coddling et al., chapter 8; Coxworth, chapter 7; Kramer and Greaves, chapter 1; Lupo, chapter 6) analyze specific decisions made by foragers today.

Many factors contribute to changes in hunter-gatherer lives and affect decisions about what traditional practices to retain and what novel element to adopt. These may include new technologies, health services, external monetary support, environmental access and productivity, political subjugation, and the influences of regional, national, and global institutions. Not all of these factors are discussed in every chapter. Here we preview the two common themes of the economic and social costs and benefits of maintaining a foraging way of life that are discussed in each chapter (for a quantified summary of these variables, see Kramer et al., appendix A).

#### ECONOMIC DIMENSIONS

Detailed analyses of the trade-offs between different economic opportunities show that the benefits of foraging often outweigh the alternatives. In chapter 1, Kramer and Greaves discuss how the Pumé, like many other South American foragers, have had access to bitter manioc for hundreds of years, yet they have not become increasingly reliant on food production. An analysis of the nutritional and energetic trade-offs between collecting roots and cultivating manioc shows that the wild resources are equally if not more efficient. In addition, bitter manioc is compatible with the mobility and seasonal scheduling requirements of the pursuit of wild foods. For these combined reasons, the Pumé favor wild resources over the domesticated alternatives. Rather than replacing wild foods, small-scale manioc cultivation extends the viability of a primarily hunting and gathering economy.

This pattern is repeated across Africa. Among San speakers in Namibia, even after fifty years of oftentimes forced sedentarization, 99 percent of individuals still depend on foraged foods, with 54 percent relying on bush foods as a primary or co-primary food source (Lee, chapter 3). Similarly, foraging is integral to the economic and social lives of San in Botswana (Hitchcock and Sapignoli, chapter 4). The Hadza likewise maintain a hunting and gathering economy even where agriculture is possible, in part due to the benefits foraging provides relative to farming (Blurton Jones, chapter 5). In the Central African Republic, forest foragers actively adopt new technologies to increase their foraging efficiency in an increasingly depleted environment (Lupo, chapter 6).

In the western Australian desert, Martu can pursue a number of economic alternatives that include foraging, wage labor within the community, or the production and sale of paintings for the expanding Aboriginal art market. When the costs and benefits of each are compared, the results suggest that foraging may be one of the best options available to individuals (Codding et al., chapter 8), particularly within a heavily modified anthropogenic landscape that facilitates the hunting of reliable resources (Bliege Bird et al., chapter 9).

While some aspects of living in a modern nation-state may limit hunting and gathering options, a number of cases included in this book show that new technologies enhance foraging in a globalized setting. For example, when the Inuit opted to centralize in government-sponsored communities in order to have access to medical care, seal hunting became more difficult because hunting grounds were too far away for them to successfully make the round trip with dog sled teams (Wenzel, chapter 2). The Inuit then adopted snowmobiles, which facilitate long-distance travel. Because snowmobiles run on gas and not seal meat, however, individuals are required to engage further with the market economy to fund the costs of fuel and maintenance.

Similarly, in Australia Bardi have adopted boats and Martu Land Cruisers to access fishing and foraging grounds, respectively (Codding et al., chapter 8; Coxworth, chapter 7). In Africa, the Botswana San now use horses to travel to remote hunting grounds (Hitchcock and Sapignoli, chapter 4). In these cases, traditional foragers have chosen to adopt new technologies as a way to continue foraging as a viable economic alternative in an altered landscape.



## SOCIAL DIMENSIONS

While the literature is replete with examples of innovations in subsistence and technological practices among hunter-gatherers historically, much less is known about the social effects of these transitions. It became clear during the seminar's discussions that not only the economic benefits of continuing to forage but also the social costs of not foraging are significant. This commonality emerged as the most salient across all groups. Despite other changes, what appears critical to contemporary hunter-gatherers is the preservation of their sharing and cooperative relationships that allow them to maintain their identities. Although governments and NGOs may enact policies incentivizing the use of cash, traditional sharing relationships persist. In the struggle to preserve social autonomy, social relations become a durable good.

In the case of the Inuit (Wenzel, chapter 2), what has remained constant through the technological shift from dog sleds to snowmobiles is the role of women. In the past, women manufactured much of the traditional technology that enabled men to hunt with sleds. Now it is women who have the wage labor jobs that generate the cash needed for the purchase and upkeep of snowmobiles.

Martu use Land Cruisers as a means of continuing traditional hunting practices, attending rituals, and fulfilling social obligations. Vehicles allow Martu people to reside in permanent, government-sponsored settlements and still access traditional foraging grounds, typically up to an hour's drive away. While traditional patterns of residential mobility would have brought individuals together for ritual aggregations (such as initiations) and social obligations (such as funerals), vehicles now permit them to cross vast distances in a few days, such that men and women maintain their extensive social and ritual networks across western Australia and beyond, despite living in isolated pockets (Bliege Bird et al., chapter 9; Coddling et al., chapter 8).

Among the Pumé, critical inputs of wild tubers during the wet season have important social implications stemming from the subsistence value of women's contributions to the diet and their political equality with men. The retention of wild plant and animal foods also reifies several group cohesion mechanisms, including bilocal residence patterns and a commitment to ritual activities, that enhance resource sharing and activity coordination in a depauperate terrestrial environment where protein returns have a high seasonal and daily variance (Kramer and Greaves, chapter 1).

Although initially cast as a normative explanation, Woodburn's (1982)

distinction between immediate and delayed-return economies is a common theme in several chapters, although not always with the same results. While some foraging groups store food, Woodburn suggests that foraging economies are largely focused on immediate returns that are shared widely with others. New modes of subsistence—such as pastoralism, agriculture, or wage labor, in which returns are delayed or are stored (i.e., in a herd, granary, or bank)—remove one from the many social obligations that function to maintain networks of interdependence, shared risks, and rewards. The maintenance of social networks, for example, appears to help explain the persistence of foraging among the Botswanan San (Hitchcock and Sapiñoli, chapter 4). Among the Hadza, foraged foods are shared widely, and sharing ethics are closely tied to Hadza identity (Blurton Jones, chapter 5). The shift from hunting and gathering to farming or herding can entail forfeiting social connections in times of hardship, the loss of accumulated social capital, or exclusion from one's social network. In this context, the social costs of not foraging are too high and to stop foraging would mean, in essence, that one is no longer Hadza.

Among the Bofi we see similar social implications of delayed- versus immediate-return foods. The Bofi have long-term relationships with neighboring horticultural populations (Lupo, chapter 6). While alternative economic opportunities concentrated on the bushmeat trade could earn higher returns, participation would force Bofi individuals to break ties with their neighbors.

In contrast, the social cost of incorporating bitter manioc cultivation is negligible among the Pumé. Even though bitter manioc is a delayed-return resource, because its sharing distribution is similar to that of wild roots, it does not disrupt the traditional system of exchange obligations. Rather, manioc an additional resource within the existing redistribution network (Kramer and Greaves, chapter 1).

Navigating novel leadership roles also impacts the social costs of not foraging. Among many mobile hunter-gatherers, individuals may be reluctant to become leaders (Bird and Bliege Bird 2010; Wiessner 2009). Those who do assert leadership typically are knocked down or ostracized (Lee, chapter 3). In some hunting and gathering societies, such as the Martu, foraging may be incentivized because status is linked to the prestige of acquiring and distributing wild resources (Bliege Bird et al., chapter 9). In other cases, novel leadership roles emerge through the incorporation of new economic pursuits, as among the Bardi (Coxworth, chapter 7).

## Conclusions

What becomes clear throughout these chapters is that hunter-gatherers continue to forage because the economic benefits of doing so are high relative to the local alternatives. But perhaps more importantly, they continue to forage because the social costs of not foraging are prohibitive. Across the twenty-first-century hunting and gathering societies we discuss in this book, the social networks built through foraging and sharing appear to be more highly valued than the potential marginal gains from shifting to a new means of subsistence. These societies are integrated within local and global economies and reliant on state subsidies to varying degrees. Despite these differences, hunting and gathering continues to be a viable and vibrant way of life. Given the nuanced ways in which foraging populations adapt to changing conditions in an ever globalizing world, as revealed by the case studies in this book, we should expect that hunting and gathering will remain a viable way of life well into the future.

## Acknowledgments

Editing this book was a true collaborative effort, and the question of editorship was left unresolved until moments before we put the first draft into the mail. We followed Gray and Anderson's (2010) example and decided the order of editorship with a coin toss. Thanks to Leslie Knapp and Richard Paine for administering the toss.

## Note

1. Throughout the text, the terms *hunter-gatherer* and *forager* are used interchangeably to refer to the mode of subsistence. Ethnographic and linguistic terms for specific hunter-gatherer populations are defined within each chapter.