

FIRST AMONG EQUALS: MALE-MALE COMPETITION
AMONG THE BARDI OF NORTHWESTERN
AUSTRALIA AND ITS IMPLICATIONS
FOR HUMAN EVOLUTION

by

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ABSTRACT

In this dissertation, I follow three avenues of inquiry regarding status competition among the Bardi – a group of part-time foragers living in northwestern Australia. The first focuses on how the current array of status-linked behaviors came to be so widely used. After a brief introduction, I present findings from a year-long ethnographic study of Bardi men. I review the recent, postcontact history of the region with special emphasis on venues of status competition. Relying upon comparative and historical evidence as well as theoretical inferences, I detail how two novel status-linked behaviors (i.e., wage labor and dealing with bureaucracy) emerged in the latter half of the twentieth century as well as the effects of religious and governmental interventions on more traditional activities such as big game hunting and gaining cultural knowledge.

Describing how these options emerged provides key insights into the contemporary competitive environment in Bardi country, but a comprehensive picture of male competition there requires a sense of how men make use of these behaviors. The third chapter therefore engages the observation that men have many more options for seeking status when compared to other primate males, yet we know relatively little about how men cope with the sometimes-overwhelming array of opportunities. Focusing on whether men constrain their efforts to just a few behaviors or whether they make use of every available opportunity, I find that the most prominent men are known for their success in most, if not all, domains of status competition.

In the fourth chapter, my coauthors and I build upon lessons from the Bardi case in reviewing distinctive attributes of men's competitive behavior. We begin with the observation that, as compared to status seeking among other male primates, men rely less on within-group violence, make use of a wider range of behaviors, and readily incorporate new opportunities into their behavioral repertoire. Through a survey of relevant ethnographic, primatological, and experimental evidence, we tie these characteristics to the uniquely human aptitude for and interest in sharing mental states with others.

For Dad, who taught me to see the forest.

TABLE OF CONTENTS

ABSTRACT	iii
LIST OF FIGURES	viii
ACKNOWLEDGEMENTS	ix
Chapters	
1. AN INTRODUCTION	1
1.1 Why is this important?	1
1.2 What follows	5
1.3 A note on terminology.....	6
2. WHAT NOW? A BRIEF HISTORY OF STATUS SEEKING AMONG THE BARDI.....	8
2.1 Introduction	8
2.2 Cultural knowledge	13
2.3 Hunting	21
2.4 Wage labor	35
2.5 Bureaucracy.....	45
2.6 Conclusion.....	54
3. MEN'S BUSINESS: BARDI STATUS IN A CHANGING WORLD.....	58
3.1 Abstract	58
3.2 Introduction	59
3.2.1 Ethnographic context	65
3.3 Data collection and analysis	70
3.4 Results	79
3.5 Discussion	80
4. PATHWAYS TO PROMINENCE: THE PROLIFERATION OF VENUES FOR ELICITING DEFERENCE IN GENUS <i>HOMO</i>	91
4.1 Abstract	91

4.2 Introduction	92
4.2.1 A note on terminology	96
4.3 Deference among nonhuman primates	96
4.4 Deference in Djarindjin	101
4.5 Implications of shared intentions	105
4.6 Conclusion.....	113
5. CONCLUSION.....	116
APPENDIX: HIERARCHICAL MODEL OF EXCELLENCE SCORES	120
REFERENCES.....	125

LIST OF FIGURES

1.1 Map of Bardi country	3
2.1 Self-reported hunting behavior by age	34
3.1 Nominations as a function of self-reported participation data	75
3.2 Models of success in two venues	77
3.3 Scatterplot matrix of nominations in five competitive venues.....	78
4.1 Schematic of ESS in aggressive interactions	111
A.1 Excellence scores across five domains.....	123

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CHAPTER 1

AN INTRODUCTION

1.1 Why is this important?

This project started with a puzzle. So-called “simple” hunter-gatherers are egalitarian, with the only differences between individuals based on age, sex, and personal attributes (Woodburn 1982). Egalitarian foragers can try to persuade their peers to follow a given course of action, but no one has the power to force anyone to do anything. Furthermore, any adult is free to protest decisions made by other group members by “voting with their feet” (i.e., leaving the group). Personal freedom is highly valued and closely guarded (Gardner 1991). But Aboriginal Australia paints a different picture. Classic ethnography from the island continent yields evidence of steep social hierarchies based on ritual life (Meggitt 1965; Strehlow 1970; Myers 1991; Tonkinson 1991). Aboriginal men gained authority via ritual knowledge and the oldest men generally occupied the most prestigious social positions (see, for example, Hart et al. 1988). This authority allowed Aboriginal men to control many aspects of social life by defining both the rules of proper behavior and punishments for infractions of these rules (Meggitt 1965; Strehlow 1970; Hart et al. 1988; Elkin 1994). Why did Aboriginal Australia look so different from other hunter-gatherer societies?

Hawkes (2000) proposed that Aboriginal social organization resulted from the paucity of big game. According to her argument, the undependable returns from big game hunting kept all men more or less equal by reducing the advantage of older men's head start in the social world. In the absence of large animals, which level the playing field in other ethnographic situations by adding to younger men's social standing, those born earlier could translate their broader and deeper social networks into positions of power. At first glance, this seemed to be a plausible explanation for the gerontocracy of Aboriginal Australia. Kangaroos and emus were the only sizable game in Australia for the past 30,000 years or so and they are quite small compared to the large animals found on other continents. Their small size, Hawkes argued, diminished their utility as a means of gaining status (cf., Sackett 1979; O'Connell 2000). Perhaps the lack of big game allowed older men to impose their will. Bardi country – the northernmost projection of a large peninsula in northwestern Australia (see Figure 1.1) – apprised me of a problem with this hypothesis: the sea.

I first visited Bardi country in 2008. I was surprised during this initial visit by the overwhelming focus on the ocean. The sea seemed to pop up everywhere – on trips to the “bush” (which involved the beach more often than not), in conversation, painted on community buildings, and in lessons at the local school. These were “saltwater people,” who embraced the marine world as an essential part of their lives. Though most Bardi people have come to depend on grocery stores, many still rely upon wild foods and nearly everyone enjoys fresh fish from time to time. Two of the more significant resources that Bardi people depend upon are large marine animals – turtles and dugong. They figure



Figure 1.1: Map of Bardi country. Stars indicate major communities while filled circles show family outstations.

prominently in mythical stories. They form the centerpiece of local imagery, like the Bardi-Jawi Rangers' logo. And, importantly, Bardi men hunt them.

Like kangaroo (Sackett 1979) and emu (O'Connell 2000) hunting in the desert, Bardi big game hunting seemed to challenge Hawkes' hypothesis. Furthermore, extant ethnography attested to the existence of a strong gerontocracy as recently as the early twentieth century (Campbell and Bird 1915; Elkin 1933; Elkin 1935b; Elkin 1935a).

Clearly, big game hunting and the Aboriginal pattern of social hierarchy could coexist. Intriguing questions remained, however. Were there age-specific patterns of specialization in different status-linked activities? For example, did young men (who were at a disadvantage in the ritual realm because of their age) rely more heavily on turtle and dugong hunting as compared to their elders? What about recent changes to the set of opportunities for gaining status? Did younger men make use of novel domains more readily than older men? How had history and policy influenced male competition for status? Though these questions were inspired by and pertain specifically to the Bardi case, they also relate to larger issues in the study of human behavior and evolution.

As in many animal species, social status seems important to humans. From an evolutionary perspective, status is important insofar as it governs access to resources, both material and social, that affect individual fitness. Its importance is more than just theoretical, however. Status is a central concern – and a conscious one – of everyday life. People strategize over how to gain or maintain it. They celebrate their successes, lament their failures, and critique the strategies of others, leading Ellis (1993b) to identify linguistic acumen as the most important attribute separating human from nonhuman status processes. Language is not the only thing separating human status competition from that of other animals, however. Compared to our closest living relatives, we rarely rely on violence against group members to advance our social position. We readily participate in new venues for gaining status and we make use of a wide variety of ever-changing domains for status competition. The Bardi case provides evidence of each of these attributes and, in so doing, helps elucidate broader patterns of human status competition.

1.2 What follows

Each of the three chapters that follow tackles a slightly different set of questions. Chapter 2 examines the history of status competition among the Bardi. Using interview data, historical sources, and relevant theory, I describe the evolution of current hunting practices and the historical depth of ritual life. These more traditional activities have somewhat unclear origins, but, in the case of hunting, well-attested theory holds clues to prehistoric utility and practice. Moving past these older forms of competition, I detail the consequences of Australian policy decisions for Bardi men's opportunities. In particular, I examine Australia's shift to self-determination, which has had a number of important consequences for Aboriginal Australia. Two such consequences are the emergence of wage labor and engagement with bureaucracy as viable means of gaining status.

In the third chapter, *Men's Business*, I rely on quantitative data gathered among the Bardi to investigate how men make use of an array of new and old opportunities for status. Opportunity costs are an important constraint on any behavior, but there are more diverse ways to productively pursue status than, for example, to care for children or find food. Because of our ability to pursue a wide range of opportunities for status, humans must weight their options carefully. Yet we know little about men's strategies for making use of the range of possibilities. *Men's Business* addresses this gap in knowledge by comparing men's competitive success across five distinct venues.

In the final section, Earl Keefe, Kristen Hawkes, and I review the current state of knowledge regarding the evolution of human status seeking. We present relevant findings from my work among the Bardi, summarize key points from the primatological literature, and critique extant hypotheses about the evolution of uniquely human attributes of status

competition. We then bring together evidence from anthropology, psychology, and primatology to construct a novel hypothesis for the evolution of status seeking in our genus. Our synthesis aims to account for three key attributes of status competition in human societies: the diversity of venues, propensity for exploiting new opportunities, and the lack of reliance upon within-group violence.

1.3 A note on terminology

Status is a surprisingly slippery concept, both in its definition and usage. Sociologists use the word to refer to one's position in society (Schaefer 2012). In this intellectual tradition, social status (e.g., business leader, mentor, athlete, parent) determines an individual's role or the various behaviors that she is expected to perform (Schaefer 2012). Social scientists in many other fields define status in socioeconomic terms through quantifiable, class-linked aspects of public life like income, wealth, and education. For its part, anthropology has a tradition of relying on a definition of status much like that of sociology, where one's status comes from his or her position in society (Ember et al. 2011).

These concepts are only obliquely related to the topic at hand. Instead of relying on them, I choose to follow Henrich and Gil-White (2001) and define status as received deference. This definition accurately characterizes the relations between Bardi men living in a world without much socioeconomic differentiation. In Bardi country, as in almost every human society, there are "haves" and "have-nots," and a deference-based definition of status is a particularly useful way to identify the members of each group. In the first

two chapters, I use status, but in the third chapter, my coauthors and I substitute deference for status in an effort to be more explicit about the concepts we discuss.

CHAPTER 2

WHAT NOW? A BRIEF HISTORY OF STATUS SEEKING AMONG THE BARDI

2.1 Introduction

Status is important to males in many sexually reproducing species – from crustaceans to mammals and insects to birds (Ellis 1995). This observation certainly holds true among the primates (Strier 2011), including our closest living relatives in genus *Pan* (*P. paniscus*: Kano 1996, Hohmann and Fruth 2003, Surbeck et al. 2011; *P. troglodytes*: Tutin 1979, Hasegawa and Hiraiwa-Hasegawa 1983, Morin et al. 1994, Nishida and Hosaka 1996, Constable et al. 2001, Vigilant et al. 2001, Boesch et al. 2006). Unlike other primates, human males have variety of options when it comes to acquiring and maintaining social standing. The Bardi, a group of part-time foragers living in northwestern Australia, have been exposed to a number of social, environmental, and economic changes in the past 120 years owing to increased interaction with European colonists. In Chapter 3, I investigate how Bardi men make use of new status seeking options resulting from these changes while continuing to pursue status via more traditional activities. A useful analysis of men’s competitive behavior first requires a summary of the contemporary options and how they came to be. This chapter provides that summary, centered on the question: Why do Bardi men pursue these behaviors?

Answering this question requires a few different lines of evidence. Costly signaling theory (Zahavi 1975; Zahavi 1977; Grafen 1990; Maynard Smith 1991; Johnstone 1995; Johnstone 1997) provides insight about general attributes that make some behaviors more useful for gaining status than others. It specifies that individuals engage in costly behavior to communicate qualities that are hard to observe otherwise. A behavior's costs preclude deception since only individuals with the relevant quality can afford to signal it. Costly signaling works when the intended audience receives the signal reliably, benefits from the transmitted information, and then behaves in a way that suits the signaler. Signalers pursue behaviors that most efficiently produce useful audience responses (Johnstone 1997) – status in this case. Anthropologists have added a few more attributes of effective signals among humans, including audience size (bigger is better; Smith and Bliege Bird 2000), providing material as well as informational benefits to audience members (Hawkes and Bliege Bird 2002), and engagement in group beneficial behavior (Smith and Bliege Bird 2005). These specifications, though limiting the realm of possibilities, nevertheless leave a wide array of options.

Understanding why Bardi men do this and not that depends on the attributes of the available options; this is where the utility of costly signaling theory lies. It also depends, perhaps more fundamentally, on which options are available. Investigating how and why particular opportunities become available requires knowledge of local history. Only by taking advantage of history can we grasp why very few men pursue the highest paying jobs in Bardi country despite the prestige that comes with money, or how detailed ecological knowledge can lead to more beneficial dealings with local bureaucrats. The historical particulars reveal how some options came to be widely used while others did

not catch on or were never present. As I demonstrate below, each of the competitive domains analyzed in this chapter has a history that influenced – and continues to influence – its utility to Bardi men.

Before going any further, I should note that I did not include every available means of status competition in my analyses, which would have been impractical for a variety of reasons. Instead I focused on five (cultural knowledge, big game hunting, wage labor, navigating bureaucracy, and community leadership) that I could investigate feasibly. The process that I used to identify these domains of status competition began with participant observation and informal interviews. These methods generated a range of candidate activities. I then narrowed this range by informally evaluating how well each activity fit the attributes of useful signaling behaviors (costliness, provision of non-information benefits to audience members, ability to elicit desirable reactions from the audience). Then I eliminated from consideration those behaviors that met the criteria, but, for whatever reason, were not feasible targets for investigation (e.g., Bardi collaborators dissuaded me from inquiring about fighting ability because of the topic's negative connotations).

Below, I take a closer look at how four of those five venues of competition emerged and how they have changed over time. To document the dynamics of these four venues, I rely on historical information, theory from biology and anthropology, and ethnographic observation. I have chosen to exclude community leadership from this examination because it is a nebulous venue of status competition. Tracking its emergence and development would be difficult, if not impossible, and well beyond the scope of this chapter.

I gathered the ethnographic data underlying this chapter over a period of thirteen months spent in the Kimberley region of northwestern Australia living among the Bardi. Bardi country encompasses the land, intertidal regions, and outlying islands of the northern tip of the Dampier Peninsula – a broad triangle of land jutting north of Broome, Western Australia. King Sound marks the eastern border of the Peninsula and the Indian Ocean lies off the north and west coasts (see Figure 1.1). Most data collection focused on the community of Djarindjin. Home to approximately 250 residents, Djarindjin is located on the western edge of the Peninsula and is separated from the ocean by an extensive dune system. It abuts the community of Lombadina, site of the now-defunct Catholic mission, from which it split in the 1980s.

In addition to Djarindjin, I gathered data at nearby outstations. In the parlance of Aboriginal Australia, an outstation refers to a collection of buildings built by a clan group on their ancestral lands. Outstations became popular in the 1970s owing to a favorable political climate and the provision of Commonwealth funds for their establishment. Life on outstations differs in important ways from life in the major communities. These disparities result primarily from the remote location of most outstations, which are typically sited on the coast and away from the main road linking the three communities (Djarindjin, Lombadina, and One Arm Point) to each other and to Broome. Transportation costs limit outstation residents' interest in outside employment, unless the job provides access to a vehicle and fuel. Such costs also limit involvement with the wider Bardi community.

Until the early 1880s, the Bardi lived as full-time foragers dependent primarily upon varied coastal ecosystems. This historical dependence is reflected in a contemporary

identification with the sea; the Bardi call themselves “saltwater people.” Though their status as hunter-gatherers does not position the Bardi as perfect analogues for ancestral foragers, making a living from wild foods does present unique challenges and, as a consequence, unique insights into the evolutionary past shared by all humans (Kelly 2007). Status competition is one realm in which hunter-gatherers can provide a useful perspective (von Rueden et al. 2008). As with hunter-gatherers elsewhere (Hawkes and Bliege Bird 2002; Smith 2004), big game hunting is an important means of status competition for Bardi men (and appears to have been for as long as anyone can remember; Rouja 1998). Unlike hunter-gatherers on other continents, however, status among Bardi men depends heavily upon ritual concerns – another aspect of Bardi life that appears to have a long history (Campbell and Bird 1915; Elkin 1933; Elkin 1935a; Elkin 1935b; Worms 1950; Worms 1952). Aboriginal Australia’s ethnographic record shows that the emphasis on ritual life as a central component of men’s social standing is not unique to the Bardi (Meggitt 1965; Strehlow 1970; Myers 1991; Tonkinson 1991; Elkin 1994; Bird and Bliege Bird 2010). Yet the contemporary picture, which I describe in detail below, might be.

In addition to these long-standing domains of status competition, Bardi men have taken advantage of new opportunities. In various guises, wage labor has been a part of Bardi life for more than a century (Glaskin 2002). Since the decline of Christian missions and the advent of Indigenous self-determination in Australia, it has become an attractive means of status seeking for a substantial fraction of Bardi men. Likewise, the explosion of Indigenous-specific organizations, programs, and corporations fostered by the policy shift to self-determination has presented men with a new means of gaining social

standing via their skillful negotiation of the bureaucratic obligations that affect so much of daily life in Bardi country.

The flexibility demonstrated by men's use of old and new forms of competition makes the Bardi case a strong example of uniquely human patterns. Like men everywhere, Bardi men must decide which domains of competition best suit their status seeking strategies. They must decide how to take advantage of new opportunities without decreasing gains made elsewhere. In the discussion that follows, I aim to illustrate the historical, economic, and political factors that shape these opportunities and men's pursuit of them.

2.2 Cultural knowledge

Ethnographers working in Aboriginal Australia often note the importance of religious and spiritual concerns in the lives of Aboriginal men (e.g., Strehlow 1947; Meggitt 1965; Warner 1969; Elkin 1979; Myers 1991; Tonkinson 1991; Elkin 1994; Berndt and Berndt 1996). Here, the proper execution of ceremony is essential for the world's continuance and the lives of creatures living in it. Yet the influence of Aboriginal men's religious life extends even farther, dictating rules of proper conduct, marriage and social organization, and land and resource use. Knowledge given by ancestral beings and handed down orally through the generations underlies these rights and rules and is held in trust by the male elders who earned the privilege to learn it. Since not everyone acquires this knowledge and since it informs so much of life, those who hold it gain authority and standing in the community (see, for example, Elkin 1979; Myers 1991; Elkin 1994). Historical accounts from Bardi country indicate that these patterns held true in the past

and more recent ethnographic work, including my own, indicates an expansion of the scope of cultural knowledge that men use to bolster their authority.

Drawn to Bardi country following the arrival of pearling crews, a handful of ethnographers produced accounts of life among the Bardi in the early 1900s. Those who commented on religious life, and most of them did, describe rules of behavior and ceremony that reflect wider Aboriginal patterns. Campbell and Bird (1915, see also Bird 1911) published the first ethnographic description of the Bardi. In it, they recount important aspects of everyday and religious life but fail to divulge underlying interpersonal relations – including whether elders guided ceremonial and social life. Perhaps the lack of insight resulted from poor source material, which consisted of entries made by W.H. Bird and Sydney Hadley, founder and head of the mission on Sunday Island, in ethnographic workbooks distributed by the Western Australian government (Glaskin 2007). Their depictions nevertheless indicate that the Bardi engaged in the sorts of rights and rituals that emphasized male knowledge and the authority of old men.

In 1928, A.P. Elkin spent seven weeks in and around Bardi country and subsequently published numerous descriptions of Bardi life (1932; 1933; 1935a; 1935b; 1979). In these publications, he stated that the Bardi continued to practice many aspects of traditional culture during his time there. He pointed to traditional rules of marriage and social avoidance, initiation, language, totemism, and kinship as ongoing practices during the period of his fieldwork (Elkin 1932; Elkin 1933). Unlike Campbell and Bird (1915), he identified older, fully initiated men as the leaders of ceremonial life (1935a; 1935b).

More recent ethnographic accounts attest to the vitality of traditional Bardi culture during the late nineteenth and early twentieth centuries; they also point to the importance

of cultural, especially ritual, knowledge in determining Bardi men's social standing. Father Ernest Ailred Worms, who worked as a Pallotine missionary at Lombadina from 1931 to 1955 (Glaskin 2007), agreed with Elkin's depiction of old Bardi men as leaders in social and religious life (1950; 1952; 1970; Worms and Nevermann 1986). Yet Worms lamented (1970) that the arrival of military transportation during World War II undermined many aspects of traditional culture, including the authority of old men. He claimed that the frequent use of transportation by young people led them to abandon the "old tribal divisions [based on] language, social organization, and adherence to mythological birthplaces" (1970) that he and other missionaries had tried to preserve. The diminution of tradition cannot be attributed solely to transit, however. In the same publication, Worms described his efforts and those of colleagues to do away with parts of ritual practice and social custom that they found morally offensive or that obstructed their goals. Such practices included polygyny, the marrying of girls and young women to old men, nomadism, everyday use of native language, and, perhaps most importantly, aspects of religion including mythology, body modification, and initiation (1970).

Echoing sentiments recorded by Glaskin (2002), many older residents of Djarindjin expressed mixed feelings about the "mission days." On one hand, making a living was simpler than it is now and drugs and alcohol were less rampant. Furthermore, some felt that the education, work ethic, and sense of responsibility they acquired through the Mission served them well. On the other hand, the Fathers imposed strict rules – especially on young women – that made some Bardi feel like prisoners in their own country. Old men spoke of how hard they worked, even as children, for basic provisions (i.e., flour, sugar, and tobacco). Old women talked about the missionaries' policy of

locking girls in their dormitories at night to keep them “safe.” What they needed protection from remains unclear (but see Durack 1969). Elders of both sexes commonly told of asking permission to visit family members living on the surrounding dunes and sneaking out of the dormitories if permission was not granted. The policy of separating children from their close relatives – a practice akin to those responsible for the Stolen Generations – was common at Catholic missions throughout the western Kimberley and was justified as a means of helping Aboriginal children become productive members of White Australia, protecting them from neglect, and/or removing them from the reportedly undesirable circumstances of Aboriginal communities (Durack 1969).

In addition to keeping families apart, the Pallotines endeavored to do away with ritual practice at Lombadina – a goal they achieved, if only temporarily. Though reports of Bardi people hiding their behavior from unsuspecting missionaries (Glaskin 2002) may give cause to question the veracity of Worms’ (1970) claim that “baptism...has been substituted for” initiation, stories from well-respected old men attest to the cessation of ritual life around Lombadina. One such man, *Ingalan* (pseudonym), grew up around Lombadina during the mission days, working for the missionaries, spearing kangaroo on the salt flats, and walking over the dunes to hunt and fish in the large bay northwest of the Mission (Figure 1.1). As a traditional owner of an important nearby ritual site and member of a large and proud patriline, he felt a responsibility to go through initiation, become a man, and “look after” the country that gave him life. Though plenty of knowledgeable, capable old men still lived around Lombadina and could easily have “put him through,” they obeyed the Pallottines’ prohibitions on men’s business. Therefore, when he reached an appropriate age, *Ingalan* snuck out of Lombadina and made his way

to Sunday Island (or *Iwanyi*: the location of a more lenient mission east of present-day One Arm Point) where the elders made him into a man. He suggested and others confirmed that this practice, though difficult and dangerous, was fairly common among Bardi men and boys (see also Glaskin 2002) since the Pallottines did not keep such a sharp eye on them as they did the young women.

The ban on ritual life around Lombadina was temporary and lasted until the 1960s, a span of roughly 30 years, but it remains unclear who should receive credit for reinstating Law on the mainland (Glaskin 2002). Publicly asking about how it came back caused disagreement, whereas asking in private oftentimes led to contradictory answers. Luckily, the details of this process are not terribly important. What matters is that ritual practice on the mainland went away for a while and then returned in the middle of the 20th century – while carrying on continuously at Sunday Island – and that Bardi men often make use of these facts in public disputes.

As Glaskin (2007) mentions, Bardi people often look to the “bosses” or *madja* who guide ritual practice to settle disputes and make important decisions for the community. Since becoming *madja* has to do with ritual life, the process by which a man gains this title does not vary much. Out of respect, I will not describe that process here. How much authority an individual *madja* commands outside of the ritual sphere does vary, however, sometimes dramatically. Some of this variation has to do with seniority, but a substantial portion derives from personal choices. Whereas some *madjamadjin* (the plural form of *madja*) relish their roles as arbiters of disputes and representatives of the wider community, others shy away from public extensions of their authority. This latter stance, though less prestigious, is understandable insofar as it frees one from the

overwhelming and oftentimes divisive politics that accompany disputes and communitywide decision-making.

A symptom of these politics is the tendency of *madjamadjin* who act as public leaders to contest the authority of their peers (see also Glaskin 2007). The claims made in such contests almost always revolve around the depth and breadth of a particular *madja*'s knowledge. Who taught him what he knows, where he learned it, and how often (and well) he uses his knowledge all come into question. The man raising such questions intends to undermine more than his target's knowledge, of course; he also intends to diminish his opponent's authority and thereby elevate his own or that of an ally. Whereas in the past such disputes may have centered only on ritual knowledge, *madja* now marshal many different kinds of information to bolster their claims to authority. In addition to songs, stories, and dances, individuals assert their knowledge of, for example, local geography, genealogy, rules of social organization, kinship, and language. Much as the *madjamadjin* contest one another's authority by arguing over the legitimacy and extent of their cultural knowledge, so too do lower-status men debate who knows what and how much that knowledge is worth.

An old dispute, resolved but still remembered, illustrates how some Bardi men seek to impose their authority and exercise their knowledge. A couple of international nongovernmental organizations (NGOs) offered to pay for a new daycare center in Djarindjin, which the community sorely needed. Since the signage would include both English and Bardi, determining the proper Bardi wording was left up to community members. Though nothing I heard indicated that this task was assigned to senior men, they quickly made it their concern.

A bit of context is essential to understanding this dispute and many others that revolve around cultural knowledge. Though the residents of One Arm Point, Djarindjin, Lombadina, and the many outstations scattered throughout Bardi country refer to themselves as “all one mob” (see also Glaskin 2002), regional differences exist. The community at One Arm Point has been influenced by its history as the resettlement site of the defunct United Aborigines Mission (UAM) on Sunday Island. There are two important details here. As mentioned above, the UAM took a less restrictive approach to Bardi culture, which meant that Law never stopped there (unlike at Lombadina). Furthermore, the Sunday Island community consisted of both Bardi and Jawi. The Jawi comprised a linguistically distinct group that inhabited the islands immediately east of the Dampier Peninsula. They have since become culturally indistinct from the Bardi (though people still identify themselves as Jawi or a combination of Jawi and Bardi, see Glaskin 2002 for a detailed discussion).

The divergent histories of One Arm Point and Djarindjin, as well as the linguistic differences between Bardi speakers in the regions or *buru* to which these communities belong (Robinson 1973), set up a conflict between two factions of men. The first group, with a core comprised of Djarindjin residents who had either lived or spent a substantial amount of time at One Arm Point, advanced a phrasing that the other men objected to. The critics claimed that the language was not truly Bardi, but a hybrid of Bardi and Jawi (cf., Glaskin 2002) that was not “proper” and constituted another in a long line of impositions by the better-funded and more prestigious community of One Arm Point. Meanwhile, the second group, mostly made up of long-time residents of Djarindjin, proposed their own wording, which they felt reflected the language as spoken by the

“true Bard” (i.e., those recognized as traditional owners of Djarindjin). The One Arm Point faction argued that the proposed language was grammatically incorrect. To support their critique, the first group claimed that men from Djarindjin “had no culture” as a consequence of the Pallotines’ restrictions and, as evidence of this fact, were rarely heard speaking Bardi in public.

Although this incident played itself out years before my arrival, men brought it up repeatedly during my visit. Usually, men retold the story in order to attack the authority of another man or men who, in their opinion, I had spent too much time speaking with or whose knowledge I had relied too heavily upon. Invariably, the accused had taken the “wrong” side in the dispute. Male friends and relatives often contributed to the disparagement. And although much ritual knowledge remains secret from women, wives, sisters, and other female relatives would add to the argument citing, for example, the opposition’s lack of linguistic acumen or ecological understanding.

Clearly, the authority gained through cultural knowledge remains an important – and hotly contested – component of status in Bardi country. Just as the kinds of knowledge that men call upon to justify their social standing have changed with time, so too have the ways that they use their authority changed. Men on both sides of the dispute took the opposition’s critique quite personally. One’s reputation as a custodian of important cultural knowledge can be used as more than a source of authority within the community; it can also lead to employment as a cultural advisor on government projects, as an Aboriginal consultant to private industry, or membership on boards in both the public and private sectors. Each of these positions brings monetary rewards, but also the

ability to make important decisions in personally beneficial ways. Knowledge remains powerful.

2.3 Hunting

Like ritual knowledge, hunting dugong and marine turtles appears to have long been an important means of acquiring status for Bardi men (Rouja 1998). Unlike ritual life, however, detailed descriptions of Bardi hunting practices do not show up in the historical record. Furthermore, archaeological investigations undertaken in Bardi country have focused on a number of intriguing questions such as site location and seasonality, land tenure, and artifact production, but not faunal remains. The paucity of material evidence and historical information leaves four means of investigating changing hunting practices: oral history, comparative study, models of foraging behavior, and direct observation.

Relied upon heavily in the Bardi-Jawi Native Title Claim (Sampi v State of Western Australia 2005) and by Phillippe Rouja (1998) in his ethnography of Bardi fishing, oral histories provide useful information about specific Bardi hunting practices. The concern with oral history, of course, is that stories tend to change when not written down. This shift has undoubtedly happened with oral histories about hunting – especially regarding the details of specific hunts. Asking different men for information (i.e., who, what, where, and when) about a recent hunt usually resulted in a range of stories. But asking men about *how* their peers (or their predecessors) hunted large marine animals generated consistent answers. Responses about past practices showed striking similarity to those recorded by Rouja more than a decade earlier. The lack of variation allayed some

of my concerns about using oral history as a way of reconstructing past hunting practices. Ultimately, stories are just stories though, and they only reveal what the teller intends or can remember.

Bolstering oral accounts are historical and ethnographic works conducted among Aboriginal groups living in similar ecologies. Indigenous hunters pursue dugong and marine turtles across the entire northern coast of Australia and into the Torres Strait (Buchanan et al. 2009). Evidence from diverse locales suggests that they have done so since well before contact (Haddon 1890; Thomson 1934; McNiven and Feldman 2003; McNiven and Bedingfield 2008). Though most dugong and turtle hunters in the region now rely on motorized boats and harpoons with detachable metal tips (Raven 1990; Rouja 1998), methods for hunting large marine animals that predate these technologies show substantial diversity. Some of them, such as spearing from a raft (Thomson 1934), accord with oral histories reported both by Rouja (1998) and by my Bardi collaborators. Others, such as the use of specially constructed spearing platforms (Haddon 1890; Nietschmann 1976; Raven 1990), do not show up in Bardi oral histories and the question of whether Bardi hunters used them in the past remains a mystery. Likewise, though historical accounts suggest that the Bardi relied heavily enough upon turtle and dugong to create conflict with White colonists (Glaskin 2002), the degree to which Bardi diets depended upon their harvest cannot be extracted directly from the evidence at hand.

Foraging models can help overcome this gap in knowledge. In particular, models of optimal diet breadth (Emlen 1966; MacArthur and Pianka 1966; Charnov 1976) may provide insight into past reliance on turtle and dugong. By identifying key constraints as well as the currency and goal of foraging behavior, they provide a theoretical framework

for interpreting the effects of changes in technology (Bright et al. 2002) and encounter rates on hunting behavior and returns. In the absence of quantitative data regarding the profitability of dugong, marine turtles, and other components of precontact Bardi diets, I will not make concrete predictions about the desirability of these animals relative to other foods. However, data from other groups (Nietschmann 1976; Raven 1990; Bliege Bird and Bird 1997) indicate that Bardi foragers should have pursued turtles and dugong whenever they encountered them and that Western technological innovations likely increased hunter's encounter rate and/or reduced the costs of handling them. Both of these observations suggest that turtles and dugong constitute a larger fraction of the Bardi diet (at least the foraged portion) now than they did in the past. Furthermore, due to the availability of low-cost, calorie-rich food purchased with governmental funds, it seems likely that Bardi men spend relatively more time exclusively pursuing turtles and dugong now than in the past. I discuss these points in more detail below, as well as their implications for hunting as a venue of status competition.

Any discussion of Bardi hunting practices must start with the ethnographic work of Phillippe Rouja. In his 1998 thesis, Rouja compiled the most extensive collection of information to date about Bardi foraging – both past and present. In particular, he detailed the transition from traditional forms of dugong hunting and claimed that changes in turtle hunting practices followed a similar trajectory (1998). My summary will necessarily be less detailed.

Echoing reports recorded by Rouja, many of my informants said that before the introduction of harpoons and dinghies, men used to harvest dugong by wrestling with them in the shallows. Unlike turtle, which hunters try to keep alive as long as possible

and thereby prevent spoilage, dugong can be dangerous to handle and must be killed immediately after capture. Oftentimes hunters would use bunches of grass or other implements to plug a dugong's nose and thereby accelerate the process. Rouja also describes communal dugong hunts in which a number of men trapped one or more dugong in a shallow bay while the tide went out, wrestling with them until they could be caught and drowned. Furthermore, he reports that, "Bardi elders all stressed the [communal] trapping technique as the predominant technique used in the past" (Rouja 1998). Similar to individual dugong hunts, Bardi men would sometimes swim out to turtles swimming near shore, grab them, and wrestle them back to land through the use of a special hold on the neck or shell (Rouja 1998). Bardi hunters would also spear turtles from rafts – aiming for soft spots since wooden points could not penetrate shell.

Rouja nominates the English harpoon as the first Western innovation to substantially alter hunting practices. This implement, which consisted of a long metal shaft with a barbed point hafted on a wooden body, allowed individual hunters to pursue dugong in deeper waters. It also expanded the target for turtle hunters, since metal harpoon points easily penetrate shell. The raft or *kalwa* (Akerman 1975) that the Bardi used for transportation provided an effective hunting platform since, after harpooning a turtle or dugong, the hunter could detach the front section to act as a float. This tactic would tire his quarry, allowing him to dispatch it after it became exhausted and thereby avoid unnecessary risk. Yet, while easy to manufacture and relatively maneuverable, rafts tended to become waterlogged with prolonged use and were entirely dependent on the tides for navigation. These attributes set the stage for the adoption of dinghies, which did not need to be dried out and could be rowed more effectively than rafts.

Along with the adoption of dinghies, outboard motors and Japanese harpoons transformed Bardi hunting practices into their current form. Unlike English harpoons, Japanese versions have detachable tips that, after being embedded in a turtle or dugong, allow the harpoon body to float free. This attribute makes a Japanese harpoon much lower maintenance than the one-piece English type (Rouja 1998), since it sustains less damage from thrashing animals. It also means that, unlike English harpoons that could be used only once per trip (Rouja 1998), a hunter can use a Japanese harpoon many times in an outing. Contemporary practices suggest that the gains in efficiency generated by reusable harpoons were substantial. Hunters often make use of their harpoons repeatedly during a single trip; having to stop hunting and repair a harpoon after each use would substantially reduce productivity.

Outboard motors, which have become ubiquitous in Bardi country, have made transit to distant hunting grounds much quicker. In the past, hunters would switch off the motor after arriving at a likely spot and quietly scull themselves into position. Some men continue to hunt like this today. Most hunters, however, use motors to chase down turtle and dugong. Successful turtle hunts, in particular, follow a regular pattern. Instead of heading for a spot and shutting off the motor, hunters patrol likely areas with the outboard at a fast idle. One man, usually the younger hunter, stands atop a small deck welded into the bow while the driver stands in the stern. Both scan the surrounding water for turtles. If the hunters have picked a good spot, sighting the first one takes only a few moments.

After sighting an animal, the hunters decide whether or not to pursue it. Sometimes this decision can be made quickly without taking a closer look. Large, square

heads and mottled coloration indicate loggerhead (*Caretta caretta*) and hawksbill (*Eretmochelys imbricata*) turtles, respectively, which the hunters ignore in favor of green turtles (*Chelonia mydas*) (this choosiness may be a recent development; see Rouja 1998). Not all greens are equal, however, and most require a short chase to assess size, sex, and general health. The ideal target is a medium-large turtle, preferably female, that seems youthful and healthy, since these animals have the richest fat deposits and, according to nearly everyone I spoke with, taste better. Hunters do take males though – usually at the end of an otherwise fruitless hunt and only if they meet the other key attributes (i.e., size, youth, vigor).

Chasing a turtle is challenging and hunters must coordinate carefully. After deciding to have a closer look, the driver sits down and opens the throttle. He steers by the spotter's hand signals, which indicate the turtle's heading and the speed required to close the distance. After catching up to the turtle and determining that it is worth taking, the spotter picks up his *jarrar* (harpoon) and uses it to direct the driver. Turtles often change direction unexpectedly during a chase, which sometimes causes the hunters to lose sight of the animal and leads to a tense few moments of searching. After relocating it (or sometimes finding a more appealing target), the chase continues. The animal eventually begins to slow and the driver steers the boat into position just behind it and off to one side.

On inexperienced teams or those made up of men who rarely hunt together, the spotter signals to the driver whether he intends to jab or throw his *jarrar* and whether he will jump or stay in the boat. Communicating his intention can be the difference between life or death since going over the side unexpectedly can mean getting run over by the

dinghy, which is travelling at high speed. Trying to stay aboard when the driver expects a jump can be equally dangerous, because drivers cut the throttle at the first sign of a throwing motion and the sudden deceleration can pitch the spotter over the side, tangle him in the harpoon rope, and drown him. Men who hunt together know each other's tendencies and instead of overt communication the driver pays attention to subtle indications of the spotter's strategy – the positioning of his feet, for example, or the angle at which he holds the harpoon – to determine whether his partner will jump.

After the spotter lodges the harpoon tip in the turtle, sometimes after multiple attempts, the hunters wait for the animal to tire itself at the end of the line. When they sense the turtle's energy waning, they haul it back towards the boat and pull it over the side. To keep the animal alive and its meat fresh, they plug the harpoon hole with a rag before either heading home or searching for another target.

The use of motors to chase animals has proven divisive, as older hunters feel that chasing dugong and turtle makes them warier and harder to kill the “old way” (i.e., sculling a dinghy and throwing a Japanese harpoon). My limited experience accords with the old men's complaints. The only hunt that I observed where the hunters tried sculling for turtle resulted in failure when all of the turtles spooked well outside of harpoon range. This complaint does not mean that chasing turtles is an inefficient means of acquiring meat, however. Data from other ethnographic situations show that it can be a remarkably efficient way of hunting with success rates averaging between 67% (Bliege Bird and Bird 1997) and ~90% (Raven 1990). Though I did not observe enough hunts to report reliable data regarding capture rates, my experience suggests that Bardi rates fall within this range.

Chasing turtles is the most visible and widely practiced hunting technique, but it is not the only one. Bardi men also use dinghies to harvest mating turtles or *oondoord*. This kind of hunting, which only occurs during the season of *lalin* (generally October, November, and early December), seems to have a long history (for a discussion of similar practices in the Torres Strait, see Haddon 1890:350 and off Cape York, see Thomson 1934:246) and can be conducted mostly from shore, with hunters and their families watching expectantly from headlands and dunes for coupled turtles. Once a mating pair is spotted, the men take a dinghy out to investigate. If the female looks worthwhile, one of the hunters will either swim over and grab her or try to harpoon her out from under the male. Most hunters prefer the former method, since using a spear or harpoon risks damaging a female's eggs, which are a prized food source.

Men also walk certain beaches looking for nesting turtles. These hunts occur in the nesting season (which generally overlaps with *oondoord* season) and only during bright phases of the moon, since turtles usually haul out onto the beach at night and moonlight is the only way to spot them. Like *oondoord* hunts, hunters prefer not to employ a *jarrar* when harvesting nesting turtles. Instead, they grab turtles on the beach or in the shallows. Only rarely do hunters swim out to acquire their prey since tiger sharks hunt for nesting turtles by patrolling just off the beach. Though Bardi men show little fear of reef sharks, which they encounter on almost every foraging trip, they are wary of larger species.

Contemporary dugong hunts do not show the diversity of techniques, nor the broad seasonal range of turtle hunts. They typically occur during the "cold" season or *bargana* between late April and early August (see Buchanan et al. 2009). Most men that I

spoke with said that this season is the only time dugong show up in enough numbers to hunt them effectively – implying that dugong are migratory. Rouja's (1998) observations also suggest a migratory pattern, with their presence overwhelming in some years and sparse in others, but almost always greater during the traditional hunting season. Ongoing dugong tagging projects conducted by the Bardi-Jawi Rangers, however, suggest that at least some dugong live in the waters surrounding Bardi country on a semipermanent basis (unpublished data).

Unlike turtle hunting, which still incorporates old techniques, the traditional, stealth-reliant methods of harvesting dugong have been abandoned (Rouja 1998). Bardi men attribute this shift to the adoption of dinghies and outboard motors, which make more noise than *kalwa*. The noise they produce has two effects on dugong. First, it increases the animals' ability to detect hunters aurally. This effect is amplified by dinghies' high visual profile, which makes them easier to detect visually. Also, the noise of outboard motors appears to make dugong generally more skittish – perhaps due to its effects on the animals' sensitive hearing (Rouja 1998). Older hunters reported that dugong were nearly tame in the days before outboard motors, which made the old methods of manual capture more feasible (see also Rouja 1998).

All of the dugong hunts that I witnessed followed a pattern similar to turtle hunts, with a few important exceptions. Unlike turtle hunters, who patrol likely patches with idling motors, the dugong hunters that I observed never kept the motor running once they arrived at their intended spot (cf., Rouja 1998); they switched it off soon after arrival to minimize the chances of being detected by their quarry. Furthermore, they only targeted areas where they had recently seen or heard credible reports of dugong. Despite these

measures, Bardi hunters took many fewer dugong than turtle during my time there. Rouja's (1998) observations imply that the meager dugong harvest I observed might have resulted from my stay coinciding with a year when few dugong migrated in.

Dinghies, harpoons, and outboard motors seem to have had a profound effect on hunting strategies. What about hunting productivity? Thomson reports (1934) that, "in former times, when only wooden harpoons ... were used, turtle hunting was much more difficult" on the Cape York Peninsula. The difficulty derived from having to spear turtles in the neck, a challenge that Bardi hunters also had to overcome before the advent of metal harpoons (Rouja 1998). Harpoons expanded hunter's targets because they could penetrate shell, which likely led to increased success rates and postencounter rates of caloric return. This improvement would not have affected Bardi men's preference for turtle, since turtles are so profitable that they likely never dropped out of the diet and should have been pursued whenever they were encountered. Harpoons probably had a similar effect on dugong hunting, since harpooning a surprised dugong requires less effort and entails fewer opportunities for escape than the old pattern of drowning them by hand. As with turtles, this change would have raised the postencounter returns of dugong hunting, but had little impact on their relative ranking in the diet.

Whereas harpoons seem to have lowered the handling costs of turtle and dugong, the use of dinghies and outboard motors most likely increased encounter rates. Searching for these animals before dinghies and outboards meant walking shorelines or navigating the tides on rafts. It is hard to imagine a circumstance in which either of these methods allowed hunters to cover as much likely habitat as dinghies and motors do today. Though not all of the water that hunters cover in their dinghies constitutes good turtle and dugong

habitat, these technologies do allow hunters to visit many more high-quality patches in the course of a hunt than did walking or drifting on a raft. Visiting more promising habitat should mean more encounters with turtles and dugong and more encounters, paired with more efficient capture technology, should make for more efficient foraging. Increased efficiency generally leads to more selective foraging and the elimination of less profitable food items. This change might explain informants' reports of hawksbill and loggerhead turtles, many types of shellfish, and certain species of finfish being eaten in the past but ignored today. Increasingly efficient hunting has likely narrowed diets – a process that may be further catalyzed by access to store-bought food.

Presently, the Bardi are overwhelmed with inexpensive, calorie-rich foods that challenge even the most profitable wild resources for a place in the diet. At first glance, food prices in Bardi country seem quite high. A recent study of One Arm Point reported that in 2007, meat cost \$20 per kilogram of chicken breast and \$40 per kilogram of porterhouse steak at the community store (Buchanan et al. 2009). Grocery purchases are subsidized for a large segment of the population, however, by income provided by social welfare programs. I did not collect income data for entire households, but did ask 51 Bardi men how much money they made in the course of structured interviews about status. Of the 40 male respondents who reported nonzero incomes, the average weekly income was \$481.35 (average for entire male sample: \$377.53), with a substantial minority of these men (20/41) relying primarily on governmental programs for their pay. These statistics likely underestimate the importance of social programs in subsidizing Bardi incomes, however, since women receive more money from such programs – mostly

due to their role as the primary caretakers of dependent children (Commonwealth of Australia 2012) – which they share with their families.

This is not to say that all Bardi households depend on low-cost income from social programs. Qualitative observations indicate that a sizable number of Bardi nuclear families include two working adults whose earned income makes up the majority of the household budget. Yet even these families partake of public assistance by, for example, living in government-built housing (the only kind of housing in Djarindjin) or collecting payments for residing in a remote area (called the Remote Area Allowance, see Department of Human Services 2012). These forms of assistance make store-bought foods less expensive in real terms and therefore more attractive – leading to concentration on only the most profitable wild foods.

Throughout this discussion, I have focused on technological and social changes and their consequences for hunting efficiency, but another factor – status competition – plays a role in Bardi hunting behavior. There are good reasons to think that hunting large marine animals has provided a means of acquiring status for as long as the Bardi have occupied the Dampier Peninsula (see Hawkes and Bliege Bird 2002 for a review of key issues and evidence). Their large size makes them a widely shared commodity and, in combination with variance in their acquisition, sets them apart as an ideal resource for exploitation by men (Bliege Bird and Bird 2008; Codding et al. 2011). The technological changes outlined above – which lead to increased encounter rates, harvest efficiency, and selectivity – carry unclear implications for status seeking among Bardi hunters. Raven outlined one possibility in her 1990 thesis, where status competition and efficient hunting techniques led to the overharvest of marine turtles and dugong in the Torres Strait.

Certain communities have begun to enforce regulations regarding turtle and dugong hunting, including limiting the use of nontraditional technology (Australian Government Land and Coasts 2012). This is certainly a possibility in Bardi country, as some older Bardi men that I spoke with advocated a community-directed conservation effort.

The advent of new forms of status competition may constitute a buffer against overexploitation of large marine animals, however. Unlike other ethnographic situations where middle-aged men are the most successful hunters (Kaplan et al. 2000), young Bardi men reported taking more monthly hunting trips than their elders (Figure 2.1, panel A). The line in Figure 2.1, panel A corresponds to a best-fit linear regression with a negative binomial error distribution, an intercept estimated as 6.00 (95% confidence interval from 3.67 to 8.65), and an estimated slope of -0.09 (95% CI: -0.10, -0.03). Young men also reported harvesting more turtle and dugong in the past year (Figure 2.1, panel B). The curve in Figure 2.1, panel B corresponds to a nonlinear (Inverse Michaelis-Menton) model of the form:

$$y = \frac{x^a}{x + b} \quad (\text{Eq. 2.1})$$

where $a = 1.28$ (95% CI: 1.13, 1.49), $b = -11.58$ (-17.02, -6.13), and error is distributed negative binomially.

One explanation for these trends is that Bardi men have always had a unique pattern of hunting where young men spend more time pursuing large animals than older men do. Another possibility, one that I find more likely, is that new ways of gaining status (i.e., wage labor and navigating the bureaucracy) garner a fraction of the effort and

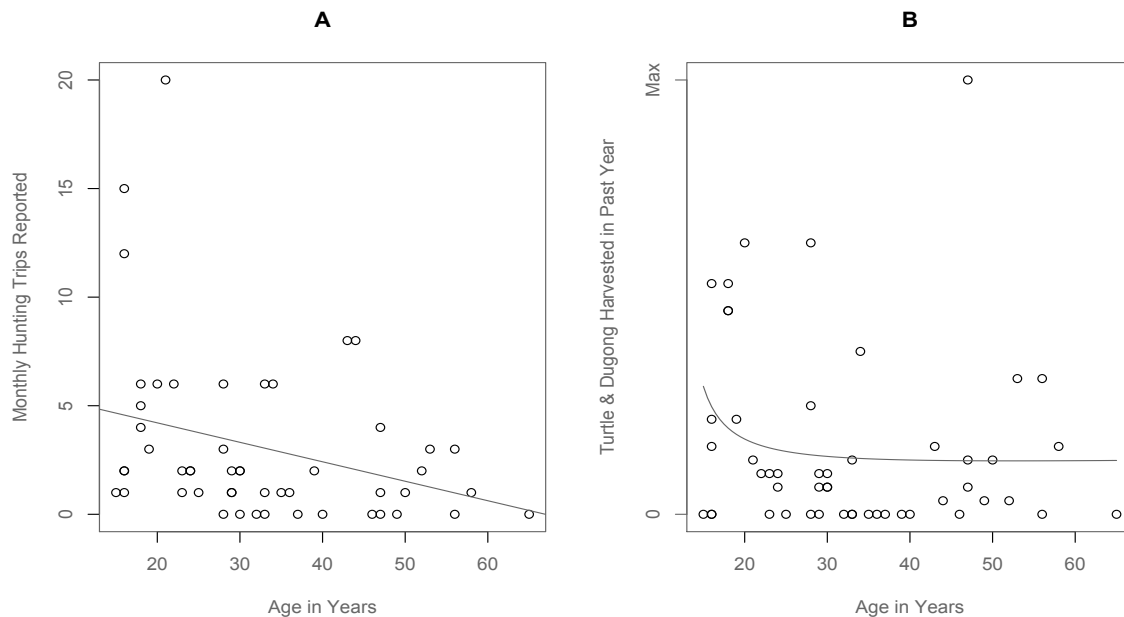


Figure 2.1: Self-reported hunting behavior by age. Panel A shows self-reported monthly hunting trips as a function of age with a best-fit linear regression (see text for details). Panel B shows number of self-reported turtle and dugong harvested in the past year as a function of age with a best-fit nonlinear regression (see text). Harvest data are reported as fraction of maximum harvest due to community concerns about misuse of raw data (Buchanan et al. 2009).

time that, in the past, older men would have spent hunting. These domains of status competition are less appealing to young men for reasons that I discuss below and, as a consequence, young men spend more time hunting than their elders do. By limiting the time spent hunting by middle-aged men (who are the best hunters elsewhere and would likely be here as well), novel venues of status competition counterbalance the gains in hunting efficiency brought on introduced technologies – reducing the catch rate and the demand on big game populations.

2.4 Wage labor

The economic life is usually the first to be modified for the natives soon appreciate our food, tobacco and implements, which they use either to supplement or supplant their own “products.” In this way the land loses its economic value. They are attracted to the white man and his goods, with the result that they desert their own territory temporarily at least... (Elkin 1935a).

Seven years before he published this observation on the economic effects of increased interaction between Aboriginal Australians and the Western world, A.P. Elkin spent seven weeks with the Bardi and their neighbors on the northern tip of the Dampier Peninsula. The pearling industry had arrived in the area forty years previously and both the Sunday Island and Lombadina missions were in operation. Though we cannot know the extent to which his experience among the Bardi influenced the perspective detailed in this quote, the process he describes closely matches their story. Understanding the advent of wage labor as a domain of status competition requires an understanding of how Bardi people came to depend on goods that they could not manufacture themselves. Without these dependencies, the money that wage laborers earn would be nearly useless as a currency of status. The story starts with the arrival of pearling crews in the late 19th century, continues through the mission period from the turn of the 20th century until the late 1960s, and reaches a conclusion of sorts in the 1970s with the Commonwealth government’s implementation of self-determination.

Before sustained contact with European Australians, the Bardi were likely involved in broad trade networks throughout the continent and, possibly, island southeast Asia (Robinson 1973; Glaskin 2002). These networks undoubtedly provided trade goods unlike those Bardi people could produce from local resources. Yet the arrival of European Australians, with their mass-produced commodities and monetary economy,

signaled a dramatic shift away from reliance on locally produced items and towards market goods.

The earliest introduction of the market economy to coast-dwelling Aborigines in Western Australia came via the poorly named practice of “blackbirding.” This vague, almost playful term refers to the kidnapping and enslavement of Aboriginal men and women for use by itinerant pearling crews. Though Robinson (1973) suggests that, owing to the influx of laborers from Southeast Asia, the enslavement of Aborigines ended in the 1880s before pearling became established around the Dampier Peninsula, many Bardi informants relayed stories of relatives who were taken from their homes and forced to dive for pearl shell – shanghaied in some cases and held captive indefinitely on nearby islands in others. In addition to enslaving local people, transient pearling crews came into conflict with Bardi men over their use of local resources, including water and marine game, as well as their “at times exploitative” relations with Bardi women (Glaskin 2002).

During the early days of pearling on the Dampier Peninsula, pearlers established temporary camps near sources of freshwater before moving on to the next best pearl bed. Due to the need for water and proximity to good pearling grounds, camps often sprang up in the same areas. It was not long before some pearlers began setting up more permanent camps on these popular spots and spending the entire wet season there. This shift to semi-permanent wet season camps began the colonial settlement of Bardi country. Other ventures, including trading posts and small missions, soon began popping up on the landscape (Durack 1969; Glaskin 2002). The Bardi visited these settlements to procure consumables such as tobacco, tea, sugar, and flour (Durack 1969) as well as other Western items (Glaskin 2002). At the missions, these goods were sometimes given away

freely, other times their disbursement required a period of residence and labor, and in other instances the Bardi stole them (Durack 1969).

Trading posts and pearling camps were different from the missions; Western goods were never free. The degree to which the Bardi used labor to pay remains vague, as does the trade value of wild foods and locally produced items. Thanks to the records left by Catholic missionaries (Durack 1969) and the prevalence of half-caste children (Robinson 1973), it is clear that sex was a currency of trade around nonmission settlements. These forms of evidence do not provide clear measures of its prevalence, however. Missionaries stood to benefit from a negative public perception of the relations between Aborigines and pearlers and may have exaggerated the sexual trade. Numbers of half-caste children on the Dampier Peninsula, on the other hand, might underestimate the prevalence of the sexual relations between Bardi women and settlers since not every liaison ended in pregnancy and, as in many human societies (Hrdy 1999), infanticide was an option for the mothers of unwanted infants (Durack 1969).

Of the five initial pearling camps, the best described and arguably the most important and enduring for the people now living in and around Djarindjin was that of Henry Hunter. He arrived in Bardi country during the first wave of pearl-shell exploration with his partners Sidney Hadley (who later founded the mission on Sunday Island) and “Frenchy” D’Antoine. In 1884, they established a cattle station near present-day Djarindjin, which provided them “the means [to] secure shore bases for their pearling activity” (Glaskin 2002). The partners sold their lease to Bishop Gibney and the Catholic Church in 1892 and, to an extent, went their separate ways (Robinson 1973; Glaskin 2002). Hunter moved his base of operations further north – near the mouth of Bulgin

creek. Here he made a home and took up trading to supplement his pearling income. According to Glaskin (2002), Hunter's settlement attracted Bardi from nearby estates who came to visit relatives, gain access to Western goods, and pursue "the possibility of the nominal kind of employment Hunter offered." Robinson (1973) reports that by 1908, sixteen years after Hunter's move, he listed approximately 80 Aborigines in residence.

Outlining the labor relations at pearling camps, Glaskin characterizes the environment as "exploitative" (2002). Robinson (1973) reports that the Bardi who lived at Bulgin "worked long hours for no pay and few rations, and attempts to avoid work or *escape from the region* were often met with summary punishment" (emphasis mine). These conditions, which constituted a slightly different form of slavery than blackbirding, initially arose alongside blackbirding operations, but persisted after those operations ceased (Glaskin 2002). In addition to his use of immoral labor practices, Harry Hunter became infamous for his appropriation of Bardi women. The reported number of wives he took varies greatly depending on the source. Glaskin (2002) and Robinson (1973) agree, however, that he fathered children with at least eleven different Bardi women. Unlike his treatment of nonrelatives, Hunter looked after his progeny well – providing them with housing and clothing and teaching them useful skills such as shipbuilding, dressmaking, navigation, and gardening (Glaskin 2002). This emphasis on job skills training, even if it was limited only to his children, separated Hunter's camp from the other local pearling bases (Glaskin 2002).

After the establishment of the missions at Lombadina and Sunday Island in 1910 and 1899, Bardi interactions with the market economy began to shift from pearling bases and trading posts to the mission centers (Glaskin 2002). This change was a gradual and

geographically variable one. The pearling camps, some of which persisted until the 1930s (Robinson 1973; Glaskin 2002), continued to draw local families with the promise of provisions, protection, and the freedom to come and go at will.

Around present-day Djarindjin, the establishment of the Catholic mission at Lombadina had immediate consequences. First established as a feeding depot, the value of Lombadina as a source of influence on the northern Dampier Peninsula soon led to its development as a mission (Durack 1969). Even after its establishment as a mission, it suffered a number of setbacks, not least of which was the internment of the Pallotine fathers during World War I (Robinson 1973). Lombadina truly began to grow in the 1920s as Bardi families started “coming in.” Glaskin (2002) reports that, for at least one family, the decision to settle at Lombadina was both an economic and social one. A small child when her family moved to Lombadina, Glaskin’s informant recalled two forces that led to her parents’ decision to settle at the mission. On one hand, the difficulties of finding enough food pushed her family towards Lombadina and its relatively steady supply of rations. On the other, many close relatives had already settled at the mission and their presence drew her family in via an elaborate system of support and obligation that characterizes kinship in small-scale societies. Upon arrival, they faced an environment very different from the pearling camps they had frequented.

Many of the people that I spoke with about the mission days remembered the regimental quality of life. The Pallotines instituted a strict policy of “no work, no tucker” that distinguished life at Lombadina from both the pearling camps and the other missionary ventures in Bardi country (Durack 1969; Worms 1970). The missionaries implemented strict policies about proper attire, conduct, and punctuality that applied to

residents both young and old (Durack 1969). Life at Lombadina adhered to a rigid schedule (see Raible 1938). Each day started with the 5:30am bell, which called residents to mass. Breakfast followed and another chime of the bell signaled the start of work for adults and school for children. These activities were interrupted by a midday break from 11:00am to 2:00pm and ended for the day at 5:30pm. The evenings were taken up with another mass and then a simple dinner. Aspects of the missionary regime persist today in Djarindjin and Lombadina, with employees of the latter community adhering to a mission-like work schedule complete with long midday break (though the morning and evening masses are no longer called). At Djarindjin, the workday schedule has relaxed, but other remnants of the mission period carry on including, for example, a well-developed sense of modesty that goes so far as to prohibit men from removing their shirts in public.

The current work environment at Djarindjin, which originated with the shift in Commonwealth policy from Aboriginal assimilation to self-determination (Altman and Sanders 2006 [1991]), differs substantially from that of the mission days. Bardi people now work for pay instead of rations. The policy of “no work, no tucker” has little place in the network of social welfare, job training, and special employment programs that structure the contemporary economic system in Djarindjin. Some choose to operate outside of this network by starting their own businesses or accepting jobs at distant mine sites. These individuals are the exception, however, and their involvement with the Australian economy is nonetheless directly shaped by governmental policies aimed at increasing Aboriginal employment (Altman et al. 2004; Taylor 2006; Biddle et al. 2008; Taylor 2008).

These policies originated with the 1972 decision of the Whitlam government to move from a policy of assimilation to one of self-determination. As many commentators have noted, this shift was significant both in its rhetoric and its policy implications (see review in Altman and Sanders 2006 [1991]). Building on the gradual admission of Aboriginal Australians into the welfare system during 1940s, 50s and 60s, the Commonwealth worked to make Aborigines fully eligible for all welfare benefits – a goal they accomplished in the early 1980s.

Perhaps more importantly, in 1977, the Commonwealth established Community Development Employment Projects or CDEP. This program, often labeled by detractors as “work for the dole,” is the single largest employer of Aboriginal labor in the West Kimberley today (Taylor 2006). Despite the derogatory epithet applied by its opponents, CDEP plays an important and productive role in many Aboriginal communities, including those throughout Bardi country. Not only does it keep more Bardi gainfully employed than would otherwise be, it ensures the continuing performance of essential services in Djarindjin: garbage collection, mechanical maintenance, and office operations. Some of the best jobs in Bardi country, including the Bardi-Jawi Rangers (see Buchanan et al. 2009), are paid through CDEP. However, most CDEP jobs in Bardi country, as elsewhere in Australia, entail part time, unskilled work for low pay (Taylor 2006) and only rarely lead to more profitable or rewarding forms of employment.

In addition to the jobs made possible by CDEP funds, Bardi men take advantage of private employment opportunities. Broome International Airport pays a team of approximately ten local men to staff the Djarindjin Airport, which primarily services aircraft from the resource extraction industry. For many men, working at the airport is a

desirable job with good hours and above-average pay; most airport employees keep their positions for substantial periods of time. Others have worked on pearl farms located in Bardi country, usually as seasonal labor. For various reasons, including difficult working conditions, low pay, and ethical issues related to the farms' tenure, working at the pearl farms is rarely a long-term prospect. Lombadina Catholic School also employs men as bus drivers and grounds keepers, though the majority of jobs at the school go to local women. Like pearl farm workers, and in contrast to their female colleagues at the School, men's tenure at the School is often short-lived.

Residents of Djarindjin and its associated outstations also find jobs in the two sectors leading the economic boom in the Kimberley (Taylor 2006): tourism and resource extraction. Jobs in the latter industry typically necessitate fly-in, fly-out arrangements whereby men work two to three week shifts (on average) at the iron mine with about a week of leave in between. These are the most lucrative jobs available and the men who have them are widely known as big earners – and big spenders. Almost immediately upon their return from a stint at the mine, friends and relatives begin visiting and making demands on their time and resources. Not surprisingly, these men often spend a portion of their free time in Broome where they can spend their earnings more freely (though not completely at their discretion, since most residents of Djarindjin also have close family in Broome).

Many men feel that having to be away from the community so frequently and for such extended periods makes work in the mining industry unattractive – in spite of the big paychecks (see also Taylor 2008). Their disinclination derives from many of the same factors that non-Indigenous workers might cite, with a particular emphasis placed on the

difficulties of being away from one's family. Furthermore, for Bardi men, leaving the community means missing out on vital aspects of cultural life and instruction. It is not possible to learn the songs, dances, and stories of one's country without making the time to sit with the elders and practice. Working at a mine site severely limits interaction with the elders and thus curtails mine workers' ability to gain authority in the community.

For some men, tourism offers a promising alternative to mining. One avenue of employment in the tourism sector runs through Kooljaman, the community-owned resort at Cape Leveque. A joint venture by Djarindjin and One Arm Point, Kooljaman caters to a customer base consisting primarily of domestic tourists. As a condition of its continued operation (as specified by the local, Aboriginal ownership group), Kooljaman must make an effort to employ local people. In contrast to the non-Indigenous and nonlocal management team (Kooljaman 2012), most Bardi employees are laborers or low-level service workers (e.g., wait staff, landscapers, maids). Residents of Djarindjin and One Arm Point make up a substantial portion of the executive board that oversees the management team, however, and all are paid for their time.

In addition to the jobs offered by Kooljaman, a number of Bardi families have set up their own tourism operations. Typically, these are cooperative affairs with a rotating roster of "employees" led by a matriarch or patriarch who handles the finances and takes primary responsibility for scheduling, advertising, and leading the tours. Young family members (<25 years old) are expected to assist tour leaders by answering questions, driving vehicles, and foraging for and sharing bush foods with tourists, but typically are not paid. There are a few exceptions to this model, wherein a single entrepreneur or couple staffs and runs a tourist operation on his or her own. Even these operators

occasionally enlist help from friends and distant relatives. Like younger family members in the cooperative ventures, these helpers are often not paid.

Work in locally owned tourism companies is sporadic. The operational heads routinely work thirty to fifty hours a week during the height of tourist season (May through August), but this number drops rapidly in the months preceding and following peak season with hours approaching zero in the slow months (December through March). Even in the busy months, young helpers are not expected to participate in every tour; requests for their help range from every other day to weekly or monthly, with the intensity of demands for their help varying as a function of how closely related they are to the head of the operation. Though they often do not pay for their helpers' labor, tourist operators view their reliance on younger family and community members as a positive contribution. From their perspective, bringing young people along on tours staves off boredom, exposes them to "their country" and traditional ecological knowledge, and helps them stay out of trouble.

A review of economic life in Bardi country would not be complete without a brief mention of those who do not participate – either by choice or by necessity – in the market economy. In a sweeping review of the demographic, economic, and educational landscape of Aborigines in the West Kimberley, Taylor (2006) presents a number of striking statistics including workforce participation rates. As of 2006, 44% of Indigenous adults (including both self-identified Torres Strait Islanders and Aborigines) in the shire of Broome did not participate in the workforce. As a remote community, Djarindjin has an even higher nonparticipation rate (Biddle et al. 2008). Though I did not collect reliable quantitative data regarding workforce participation, qualitative evidence suggests that the

majority of Aboriginal adults in Djarindjin rely on a combination of social welfare payments, paid job training schemes, and irregular employment to meet their fiscal needs. Despite some community members' acumen at navigating the complex bureaucracy that controls such payments, the weekly income of unemployed community members falls short of most employed residents – even those who only work part-time.

2.5 Bureaucracy

Like wage labor, engagement with the bureaucracy only became viable as a form of status competition due to the Whitlam government's 1972 adoption of self-determination. It was this interest in fostering self-governance by Aboriginal Australians that led to the creation of what is now called the "indigenous sector" (Rowse 2002). This sector includes a number of organizational types. At one end of the spectrum are local, community controlled, nonprofit organizations such as Djarindjin Aboriginal Corporation that exist only to serve the Bardi community. On the other end of the spectrum are large, multinational organizations such as Save the Children that have a broad mission and are controlled by a diverse, nonlocal group of shareholders. Between these poles lie myriad governmental departments and regional service providers (Sanders 2002). Acting in concert, these groups influence "all facets of existence in remote communities" (Sullivan 2010) such as Djarindjin – and they do so through a dense bureaucracy. It should come as no surprise, then, that being able to negotiate successfully with this bureaucracy constitutes a major determinant of status in Bardi country today.

Soon after adopting a policy of self-determination, the Whitlam government began restructuring policy and programs governing Indigenous welfare. First, the

Whitlam government set out to centralize control of Aboriginal affairs under the newly formed Department of Aboriginal Affairs or DAA (Altman and Sanders 2006 [1991]). This shift meant wresting control from the states, which had determined their own Aboriginal policy since the nineteenth century – a goal that the Commonwealth soon achieved (with the exception of Queensland, which successfully contested the takeover for a number of years; Sanders 2002; Altman and Sanders 2006 [1991]). The DAA, now the overarching Aboriginal welfare institution, acted to integrate Aboriginal Australians fully into Australia's welfare state and encouraged Aboriginal groups, including community organizations, to incorporate and begin administering their own programs (Altman and Sanders 2006 [1991]). The push towards self-administration spurred legislation such as the Aboriginal Councils and Associations Act of 1976, which led to the incorporation of numerous Aboriginal community organizations – including Djarindjin Aboriginal Corporation. In addition, the Whitlam government established the National Aboriginal Consultative Council or NACC, which was the first Commonwealth agency made up of elected Aboriginal representatives. NACC was tasked with advising the Commonwealth on issues concerning Aboriginal Australians and set the precedent for future Indigenous representative bodies including the National Aboriginal Conference and the Aboriginal and Torres Strait Islanders Commission or ATSIC (Robbins 2011).

Following these initiatives, Australia witnessed a dramatic expansion of the bureaucratic apparatus serving its Aboriginal citizens. CDEP emerged in 1977 and began its ascent to become the largest single employer of Aboriginal workers in the Kimberley region of Western Australia (Taylor 2006). By the early 1980s, Aboriginal Australians were fully eligible for all welfare programs, including social security benefits, such as

unemployment (Altman and Sanders 2006 [1991]). In 1980, the Commonwealth added another federal body distinct from the DAA to oversee Aboriginal affairs. The Aboriginal Development Commission (ADC) aimed to “further the economic and social development” of Indigenous Australians (including both Aborigines and Torres Strait Islanders) and “establish a Capital Account with the object of promoting their development, self-management and self-sufficiency” (Australian Government 1980). This addition mirrored the emergence of myriad governmental and nongovernmental organizations focused on Indigenous Australians. The florescence has continued, leading to a contemporary situation where, according to a strategic report by the Australian Government:

The current set of Indigenous-specific programs across the Commonwealth is unduly complex and confusing. There are too many programs sometimes with poorly articulated objectives and an excess of red tape... A smaller number of programs, with more clearly defined objectives, would have benefits in both clarity and flexibility. (2009)

The policy changes enumerated above, as well as countless others, created favorable conditions for the emergence of Indigenous-specific programs and organizations. However, favorable political conditions were not enough to build an indigenous sector – it also took money. In the first two decades of self-determination (1970-1990), Commonwealth expenditures for such programs increased twenty-five fold from 20.3 million to more than half a billion Australian dollars (Altman and Sanders 2006 [1991]). Altman and Sanders estimate that in 1990, the total expenditure on Aboriginal affairs by all levels of Australian government, including state and local governments, more than trebled the Commonwealth figure – reaching approximately 1.8 billion Australian dollars. Commonwealth expenditures have increased over the

intervening 20+ years to roughly \$4 billion in 2010-2011 (Gardiner-Garden and Simon-Davies 2012) and total expenditures appear to have kept pace (see, for example, Steering Committee for the Review of Government Service Provision 2012). Tracking total expenditure has become an ever more complex process, however, as organizations continually reorder themselves.

In addition to making it difficult to track monetary flows, the continual reordering of organizations in the indigenous sector impacts the people they are supposed to serve. The constant restructuring of extant organizations and founding of new ones, oftentimes with aims overlapping those of preexisting groups, makes it difficult to identify which service providers address which problems. Incessant changes in organizational jurisdiction, mission, and personnel lead to confusion among users about how to utilize the services on offer. The changeable nature of organizations in this sector results in part from the necessity of adapting to new policy measures; trying to sustain an NGO or Aboriginal community solely with governmental funds is a risky proposition (Sanders 2002; Altman 2009). Local politics can also have profound effects on organizations in the indigenous sector, however. It is to these politics that I now turn.

The shifting alliances between and within families play a major role in Bardi politics and can have important effects on service-sector organizations. One of the most important organizations for community residents, Djarindjin Aboriginal Corporation (DAC) provides basic services such as road maintenance and mail distribution. DAC is governed by a locally elected Council, which is in turn headed by a Chairperson. The Council chooses and provides oversight to a CEO who governs everyday operations and helps the Council execute their strategic vision for the community. This arrangement,

though transparent and well reasoned, has been a continuing source of friction. My recent visit to Djarindjin coincided with the resignation of the DAC Chair and the final months of an especially long-tenured and successful CEO – who resigned soon after I left.

Though the specifics of these resignations vary, the general process underlying them is quite similar. In both cases, a few family groups felt that they were being treated unfairly and began making their displeasure known in a variety of venues from public meetings to private conversations. Individual family members undermined the credibility of the CEO and Chairperson by suggesting that their mistreatment at the hands of these authority figures had resulted from unethical practices. The pressure that these allegations put on the CEO and Chair, both of whom occupied already-stressful and relatively low-paying positions, led to their eventual resignations, the election of a new Chairperson, the hiring of a new CEO, and the restructuring of the DAC and its operations.

In the short term, this reorganization negatively affected service delivery to all residents of Djarindjin as community office hours became irregular and DAC employees wondered whether and for how long they would remain employed – leading some to stop working altogether. In the long term, these resignations will likely affect community funding as the disorderly transition from one CEO and Chair to the next left a gap in leadership. Having no CEO or Chairperson means no one to request governmental funding, no one to maintain relationships with private partners such as those that utilize the Djarindjin airstrip, and no one to negotiate with governmental and nongovernmental organizations that wish to work in the community. Disorderly reorganization also creates an opportunity for other service providers (of which there are many) to question the

DAC's reliability and thereby argue for a portion of the governmental funding that would have been allocated to a fully functional DAC.

This example illustrates more than the effects of local politics on organizational changes and their consequences for end users, however; it also shows that some members of the Bardi community manipulate the bureaucracy in ways that suit their needs. For those who felt ill treated, these resignations provided an opportunity to remake DAC leadership in a way that suited them; one of the most vocal complainants gained a seat on the Council and another became the Chairperson. With these positions came influence over employment practices, added authority in resolving disputes, and the ability to decide how the community interacted with outside agencies. Dealing skillfully with bureaucracy can also lead to a number of indirect benefits. Paid consulting work, opportunities to communicate with policy makers, employment as a cultural advisor, and access to vital information (e.g., the emergence of new welfare eligibility requirements) all flow more readily to those who deal well with bureaucrats and their organizations.

Clearly, there are incentives for dealing with the bureaucracy, but who are the individuals who manage to do so successfully? In the present example, senior men were the most publicly visible advocates of restructuring. This situation stands in contrast to other ethnographic cases, where younger men use their knowledge of new social circumstances to gain authority at the expense of their elders (e.g., Sharp 1952; Cronk 2004; von Rueden et al. 2008; Chagnon 2012). This contrast likely results from the Bardi's long history of exposure to Western education and economy (Durack 1969; Glaskin 2002). The introduction of Western economies and governance in the late nineteenth century lent the Bardi some familiarity and undoubtedly reduced the shock of

midcentury changes. Furthermore, the initial impacts that colonization may have had on senior men's authority are long past. Even if some young Bardi men did profit from these changes at their elders' expense, they soon grew old themselves and thereby restored the traditional balance of power.

Older men opposed the relevant officials in large part because they stood to make direct, personal gains from a reorganized DAC. They were not, however, the only ones who stood to benefit from a new CEO and Chair. Why did they take charge and not other community members? Senior men led the opposition because, unlike other residents, they had relatively little to fear from the men they forced to resign. The CEO and Chair had authority within the community as well as both social and financial resources with which to oppose their detractors. This made public opposition a costly proposition. The men who led the opposition had their own sources of authority, allies, and resources that helped overcome the costs of their behavior. It is telling that no junior men and only a few women involved themselves publicly in arguments about DAC leadership. Furthermore, the few women who did get involved were close relatives of the senior men who publicly opposed to CEO and/or Chair.

Older men led the opposition because they could afford the costs of publicly opposing the men in power, but experience suggests that this case is just one example of a more general characteristic fostering older men's success in dealing with bureaucracy. Whether the bureaucracy in question is local, like the DAC, multinational, like Save the Children, or in between, those who deal well with it have something to offer in exchange for more favorable terms. To use the language of economics, male elders are more likely to have bargaining power.

Across the range of interactions that Bardi people have with bureaucracy, bargaining power is an exceedingly rare thing – at least on the Bardi side. For the most part, its rarity derives from the fact that Bardi people are usually end-users of (not directors of or contributors to) charitable and/or public services. This role limits their influence for a few reasons. The first, and possibly most important, is that organizations in the indigenous sector get most of their funding from people other than service recipients (Rowse 2002; Sanders 2002). The direction of resource flows means that they have little incentive to respond to pressure from below (i.e., service recipients). But it also means that these organizations must closely attend to pressure from above (i.e., boards of directors, charitable donors, various levels of government) in order to secure continued funding. This sensitivity provides an opportunity for Bardi people to exert an influence.

Both the most local and the least local organizations afford some degree of bargaining power to members of the Djarindjin community. The DAC and other community-based groups offer the most bargaining power to the most residents since success is measured by these organizations' ability to meet the needs of Bardi people. As demonstrated by the DAC example, however, individual use of this bargaining power varies as a function of its associated costs. Like local organizations, large multinational groups (e.g., Red Cross and Save the Children), receive their funding from outside the community. Unlike local organizations, however, their success is not specifically tied to their ability to accommodate residents of Djarindjin. This feature of their mission leaves the Bardi with limited means of influencing multinational organizations, the primary method being the permission process (i.e., deciding which organizations can work in the

community). Council members, under advisement of the CEO, ultimately decide which organizations receive permission and which do not, thereby limiting the influence that other residents can have.

Between Save the Children and the DAC are myriad governmental departments and NGOs that Djarindjin residents deal with on a regular basis. Since these organizations depend on governmental funds, the electoral process offers Bardi people a say in how these organizations operate in Djarindjin. Yet votes are an abstract and indirect form of influence and the Bardi population is not large enough to have much impact on nonlocal elections. As a consequence, since the abolition of ATSIC (the most recent and powerful Indigenous representative body to advise the Commonwealth), the task of determining funding for Indigenous-specific programs has fallen to representatives elected mostly by non-Indigenous Australians. Perhaps as a consequence of who elects these politicians, determining the success of Indigenous programs and services is often a matter of collecting and analyzing population-level data such as unemployment rates and educational attainment. Though these methods have their place (see, for example, Taylor 2008), they do not foster the agency of Aboriginal Australians. Often the only bargaining power available to Bardi people results from government sponsored program evaluations (e.g., Morgan Disney and Associates 2006; Office of Evaluation and Audit (Indigenous Programs) 2009).

The obstacles to influence are substantial and varied, yet some men manage to negotiate successfully with many levels of bureaucracy. The most widely recognized negotiators are elders who rely on key personal attributes to bargain with bureaucrats and thereby gain favorable terms. The central role of elder men in local governance seems to

be a common theme in contemporary Aboriginal Australia (see, for example, Hart et al. 1988), though it contrasts with patterns observed elsewhere in which older men fail to take advantage of new opportunities (Sharp 1952; Cronk 2004; von Rueden et al. 2008; Chagnon 2012).

The DAC example recounted above demonstrates some of the attributes, such as social support and authority gained from cultural knowledge, that elder men rely upon. Like many aspects of social life, past experience often fosters future success and experience is an important component of elders' success in bureaucratic negotiations. Though bureaucratic involvement and acumen generally increase with age, a few younger men (25 - 35 years old) have made a name for themselves through their interactions with the bureaucracy. Their success derives from many of the same qualities as those used by their elders, including social support, experience, and cultural knowledge. As compared to their elders, however, successful younger men often have greater educational attainment, including attendance at postsecondary institutions. This education provides vital skills, including written and oral communication, that separate them from other community residents and make them preferred partners for outside agencies operating – or hoping to operate – in Djarindjin.

2.6 Conclusion

Bardi men's options for status are numerous and dynamic. As I have shown above, understanding why men pursue certain venues for status competition depends not only on attributes of the available options (i.e., whether or not they constitute effective signals), but also the details of local history. In the Bardi case, bureaucracy became a

widely used means of status acquisition because of key historical events; without the advent of self-determination, Bardi men would likely not be engaged in local and national bureaucracies. Similarly, the ways in which Bardi men pursue wage labor depend on their history of interaction with the market economy – including the mission and pearling days.

Another way of describing history's effects is to say that outside forces have had – and continue to have – dramatic effects on opportunities for status competition in Bardi country. Perhaps the single most impactful event for status seeking in Bardi country was the policy shift from assimilation to self-determination. This shift brought about a series of changes that led to the advent of wage labor and bureaucracy as opportunities for seeking status. That Bardi men have taken advantage of these opportunities – while remaining involved in more traditional forms of status competition – demonstrates men's remarkable flexibility in the pursuit of status.

Self-determination turned wage labor into a useful form of status competition for the first time. Though a Western economy had been present in Bardi country since the late 1800s, it was based mostly on barter in which pearlers and missionaries paid for Aboriginal labor with provisions and housing. Starting in the late 1960s and early 1970s, governmental funds began flowing directly to community members instead of White administrators, which made monetary transactions much more common among the Bardi. Greater reliance on a monetary system increased the attractiveness of paid work as a means of status acquisition. Furthermore, the Commonwealth government's encouragement of Aboriginal participation in different aspects of the economy meant more opportunities to find a job.

Self-determination also brought about an Indigenous sector (Rowse 2002), which some Bardi men exploit to further their social standing. Like the monetary economy that predated it, the emergence of an Indigenous sector can be seen as an extension of preexisting governmental infrastructure. A key difference, however, was a new focus on Aboriginal agency. This emphasis, alongside massive increases in funding, led to the explosion of Indigenous-specific service providers working with Aboriginal and Torres Strait Islander communities. Some Bardi men have taken advantage of this expansion of bureaucracy, using it to find employment, build better communities, and make Bardi country more prosperous.

Self-determination also affected the ways in which Bardi men make use of cultural knowledge. As Glaskin (2002) notes in her discussion of the Bardi-Jawi native title claim, governmental mechanisms related to self-determination objectify knowledge in Aboriginal Australia. In terms of native title, knowledge is the basis upon which ethnolinguistic groups demonstrate their connections to country. Native title is not the only context in which cultural knowledge has taken on additional importance, however. Much as ritual acumen lent elder men authority in the ethnographic past, cultural knowledge lends authority to those who hold it today. Unlike the past, however, cultural knowledge now includes more than just ritual. Language, genealogy, and ecology are all important kinds of knowledge that contemporary men use to assert their authority. This knowledge and the authority it imparts lead not only to increased standing in the community (as ritual knowledge appears to have done in the ethnographic past), but also to increased opportunities for work and influence with outside organizations.

Hunting stands as the only domain of status competition where dramatic changes are not clearly linked to self-determination. This is not to say that hunting has remained unchanged, however. The technological advances resulting from increased interaction between the Bardi and the West (first the pearl industry, then missions, and finally the Commonwealth, state, and local governments) have changed the ways that men hunt, likely increasing their efficiency and leading to narrower diets. These changes have a long history, however; they have been sequential and not necessarily the consequence of specific governmental policies. They result from the colonial history of Bardi country.

The same argument could perhaps be applied to the other status seeking domains I have described here. Pinning their current forms to policies of self-determination allows for a more precise discussion of the forces shaping their contemporary forms. On a more general level, however, self-determination and its effects are just the most recent development in a long series of outside interventions into the lives of Bardi people. The agents of these interventions have changed over the past 120 years from pearlers, to missionaries, and now to government agencies, NGOs, and private enterprise. If the policy of self-determination becomes unpopular and expires, as some commentators suggest it will (Anderson 2007), new policies and new interventions will undoubtedly sweep through Bardi country and change the options for Bardi men. Yet, if nothing else, the history of status in Bardi country shows the remarkable adaptability of men's status seeking and suggests that whatever the future brings, Bardi men will successfully make use of new opportunities while keeping hold of tradition.

CHAPTER 3

MEN'S BUSINESS: BARDI STATUS IN A CHANGING WORLD

3.1 Abstract

Status competition may constitute a key determinant of men's reproductive success and behavior and, if so, could carry important implications for understanding our evolutionary history. The diversity of venues for status competition (e.g., long-distance trading, healing, big game hunting, oratory) means that men must decide which venues of status competition to pursue and which to ignore. Furthermore, in Aboriginal Australia, where ritual concerns largely dictated men's social standing, changes in status seeking behavior may carry important implications for social life. Nonetheless, relatively few studies have investigated what happens when men are exposed to novel venues for pursuing status. Simple economic models indicate that time spent engaged in one venue trades off against time spent in others – necessitating specialization. Yet ethnographic work contradicts this expectation; some men excel in multiple status-linked behaviors, which suggests that tradeoffs are not identical for all men. This chapter relies upon quantitative data collected among the Bardi, a group of part-time foragers in northwestern Australia, to investigate these issues. As in other ethnographic situations, high status Bardi men excel in both relatively novel arenas for status competition and in more traditional venues like big game hunting and ritual knowledge.

3.2 Introduction

Status appears to be important for males in our evolutionary lineage. Among group-living nonhuman primates, position in the dominance hierarchy correlates closely with reproductive opportunities and, in many cases, reproductive success (Ellis 1995; Strier 2011). The links between rank and mating success have been especially well documented among our closest living relatives, chimpanzees (Tutin 1979; Hasegawa and Hiraiwa-Hasegawa 1983; Morin et al. 1994; Nishida and Hosaka 1996; Constable et al. 2001; Vigilant et al. 2001). Male chimpanzees rely on physical aggression as the primary tool for advancing or maintaining their place in the dominance hierarchy. Size and strength alone do not guarantee prominence in the hierarchy, however, as competence in the formation of alliances and coalitions can be equally important (Goodall 1986; Mitani et al. 2000; de Waal 2007; Mitani 2009a; Mitani 2009b).

In human societies, a man's status derives from his reputation as, for example, a ritual leader, hunter, trader, or orator. Due to the reputation-based nature of status in human societies, the range of possibilities for status competition among men far outstrips the options available to chimpanzee males. In addition, men must contend with changing strategy sets when new opportunities present themselves (e.g., the introduction of wage labor) and old ones fade away (reduction in the numbers of large game animals, for example, or pacification by a distant government). In spite of the wider range of competitive possibilities and the less violent nature of competition, evidence across diverse human societies suggests that status may be as important to men's reproductive success as it is for nonhuman primate males (see reviews in Perusse 1993; Hopcroft 2006).

A number of important prehistoric questions implicate men's status-linked behaviors. Archaeologists have postulated that status competition related to big game hunting may account for the replacement of Neanderthals by anatomically modern humans in Pleistocene Europe (O'Connell 2006) as well as the colonization of the Americas and subsequent megafaunal extinctions there (Haynes 2013). Interpersonal competition, including competition for status, has been nominated as a driver of increased diversity and incidence of artifactual styles, decorative artifacts, and art in Africa and Europe starting roughly 50 ka (Bird and O'Connell 2006). Male status competition likely also played a role in the earliest archaeological assemblages (O'Connell et al. 2002).

For the majority of prehistory, humans lived as hunter-gatherers. This subsistence pattern shaped many important aspects of social life, including group size, social organization, population density, and sex roles, and continues to do so today (Kelly 2007). As a consequence, contemporary foragers can provide unique insights into human behavior – including male status seeking (von Rueden et al. 2008). Among the Bardi, a group of acculturated, formerly full-time foragers living in northwestern Australia, the venues for male status competition have undergone a number of dramatic shifts in the past 150 years. These shifts make the Bardi an exceptional population for investigating the dynamics of status competition, since men must navigate a dynamic array of status-seeking opportunities.

The Bardi case also presents an outstanding opportunity to shed light on one of Aboriginal Australia's ethnographic riddles: the gerontocracy. Unlike simple hunter-gatherers elsewhere, usually characterized as fiercely egalitarian (Fried 1967; Woodburn 1982), rigid age-based hierarchies typify social organization in Aboriginal Australia (e.g.,

Strehlow 1970; Hart et al. 1988). The resultant gerontocracy exerts its influence in many aspects of social life, including marriage, resource use, and the initiation of young men. Ethnographers working in the twentieth century reported that the gerontocracy held sway among the Bardi (Elkin 1935a; Elkin 1935b; Worms 1950; Worms 1952; Worms 1970; Robinson 1973; Glaskin 2002), despite the destructive effects of the pearling industry on many aspects of traditional life. This uniquely Australian pattern may influence the ways in which Bardi men take advantage of new opportunities for gaining status. If men still require ritual knowledge to increase their standing in the community, ritual concerns may limit their involvement with other forms of status competition. Another possibility might also occur, however, where introduction of status-linked alternatives to ritual knowledge undermines Bardi elders' authority and diminishes the role of gerontocracy.

Though a dramatic example, Aboriginal Australia is not the only place where status competition has changed. In a 2008 paper, Christopher von Rueden and collaborators describe the effects of acculturation among the Tsimane, a group of forager-horticulturalists living in Bolivia. They point to increased valuation of marketable skills like Spanish fluency over nonmarketable, traditional skills like tool manufacture as an important consequence of acculturation. Variation in Tsimane men's status-seeking strategies was an important consequence of acculturation. This example is, of course, part of more general processes of globalization that affect men's status decisions worldwide (Appadurai 1996). Tsimane men are grappling with a question faced by their contemporaries in Bardi country and by others around the world and across the ages: given a suite of possible behaviors, which ones best suit the quest for status?

Biologists have provided promising answers to this question by outlining how an individual can successfully employ status-linked behaviors and what they gain by doing so. According to one such theory, known as the handicap principle or costly signaling theory (Zahavi 1975; Zahavi 1977; Grafen 1990; Maynard Smith 1991; Johnstone 1995; Johnstone 1997), an actor engages in costly behaviors to signal qualities that are hard to observe directly. The costs of these behaviors ensure their honesty since only those individuals with the relevant quality can afford to display it. Costly signaling behavior only works, however, when the audience detects the signal effectively, benefits from gaining the information being conveyed, and responds in a way that suits the signaler. Consequently, given an array of options, selection pressures will lead signalers to rely on the most efficient means of generating a useful response from their audience (Johnstone 1997). Evolutionary anthropologists have successfully applied signaling theory to a range of human behaviors, including big game hunting (Bliege Bird et al. 2001; Hawkes et al. 2001b; Hawkes and Bliege Bird 2002; Wiessner 2002; Smith et al. 2003; Alvard and Gillespie 2004; Gurven and von Rueden 2006; Bliege Bird et al. 2012), food transfers (Hawkes et al. 2001a; Gurven 2004) and production (Sosis 2000; Bliege Bird and Smith 2005), religion (Sosis 2003; Sosis and Alcorta 2003; Henrich 2009), and cooperation and generosity (Boone 1998; Smith and Bliege Bird 2000; Sosis and Bressler 2003; Smith and Bliege Bird 2005; Bliege Bird et al. 2012).

Relying on data generated by these and other ethnographic studies, anthropologists have nominated attributes that increase the effectiveness of costly signaling behavior in human societies. Based on their ethnographic work on the island of Mer, Smith and Bliege Bird (2000) argued that feasting constitutes an effective signal in

part because it garners a large audience, presumably attracted by the promise of “free” food. Hawkes and Bliege Bird (2002) broadened this argument by suggesting that any behaviors that provide material benefits to the audience in addition to useful information make for more efficient signals. In the case of big game hunting, the distribution of meat that accompanies a successful kill reinforces audience sensitivity to an actor and his behavior by providing caloric benefits to audience members. Following Hawkes and Bliege Bird (2002), Smith and Bliege Bird (2005) furthered the argument by suggesting that any group-beneficial behavior can comprise an effective costly signal since providing public goods increases audience size and broadcasts a willingness to cooperate with other group members.

Surprisingly, few researchers have applied these insights to the question of how men pursue status. A handful of authors have, using extant data and an evolutionary perspective, reported the wide range of strategies that men exploit when seeking status cross-culturally (e.g., Boone 1998; Henrich and Gil-White 2001; Bliege Bird and Smith 2005). An equally small number have gathered and analyzed ethnographic data regarding multiple venues of status seeking (Bliege Bird et al. 2001; Wiessner 2002; von Rueden et al. 2008; von Rueden et al. 2011). Of these studies, three (Wiessner 2002; von Rueden et al. 2008; von Rueden et al. 2011) presented specific pathways that individual men take to gain status.

Wiessner (2002) discussed the utility of trance healing and big-game hunting among the Ju/'hoansi. Both hunting and healing produced surpluses that could be distributed widely and used to reinforce or improve a man's social standing. Yet time spent hunting or healing cannot be spent doing anything else, which implies tradeoffs

between activities. In fact, men invested heavily in both, with successful healers often reported as being good hunters, “making it difficult to separate the effects of influence gained through hunting from those gained through healing” (2002).

Along with his collaborators, von Rueden (2008) described a wide range of status-linked attributes among Tsimane men, including fighting ability, social support, food production, level of acculturation, and prosocial personality traits such as generosity. They found strong relationships among all of these traits and photo-ranked estimates of social status. The authors identified social support as the most important determinant of status and found that level of acculturation predicted estimates of social support more accurately than any other trait. Similar to the pattern of good healers being good hunters among the Ju/'hoansi, von Rueden et al. (2008) reported that:

In general, a certain, few men rank the highest in most predictors of status and all four manifestations of social status. It is to the advantage of high-status individuals to diversify their bases of status, thereby increasing the scope of their power and precluding others from gaining ascendance in a new status niche. Phenotypic correlations (e.g., better nutrition, health, and general intelligence among the higher status men) may underlie the lack of social niche specialization in Ton'tumsi. (412)

The authors reiterated this point in a later publication (von Rueden et al. 2011), pointing out the ability of highly regarded Tsimane men to succeed in many status-linked behaviors while noting the fitness gains they accrued.

Basic economic theories of behavior specify that time spent doing one activity diminishes participation in others (Davies et al. 2011). From this perspective, Bardi men who excel in one status-linked activity must have less time and resources to devote to others. Yet ethnographic studies of status seeking show that high-ranked men manage to do most things, if not everything, well. This apparent contradiction may arise from

phenotypic variation of the kind nominated by von Rueden et al. (2008) and evidenced by research into human physiology and life history (Vaupel and Yashin 1985; Hawkes 2010), as well as animal behavior (van Noordwijk and de Jong 1986; Pettifor et al. 1988). If men differ enough in their capacities, they may face different tradeoffs. These differences likely obscure the simple economic story described above since some men compete for status more effectively than their peers, allowing them to excel in more than one venue. On these grounds, I expected high-ranked Bardi men to excel across a range of status-seeking behaviors.

3.2.1 Ethnographic context

Data collection took place in northwestern Australia among the Bardi, a group of acculturated part-time foragers, between June 2010 and June 2011. I conducted interviews in the community of Djarindjin and associated outstations (Figure 1.1). Located approximately 1900 kilometers north of Perth, the capitol of Western Australia, and roughly 220 kilometers north of Broome, Djarindjin sits in the middle of Bardi country, which encompasses the northern tip of the Dampier Peninsula, close-lying islands to the northeast, and the surrounding seas. A census at the outset of the project produced an indigenous population estimate of 224, which fits closely with the most recent Commonwealth figure of 231 (Australian Bureau of Statistics 2006) in spite of the fact that the population fluctuates dramatically (see Morphy 2010 for a review of key issues).

Bardi often call themselves “saltwater people,” which reflects their historical and contemporary reliance on marine resources. The marine environment surrounding Bardi

country is complex, including reefs and tidepools, tidal islands, seagrass beds, and estuaries. On the western shore of the Dampier Peninsula, the Indian Ocean stretches without obstruction towards mainland Asia. On the eastern side, Bardi country gives way to the King Sound and the largest tidal swings in the Southern Hemisphere (Rouja 1998). Bardi people traditionally divide the land between inland areas, called *bindan*, and coastal zones or *gara*, with most terrestrial foraging focused on *gara* (Smith and Kalotas 1985). Whereas *bindan* is made up primarily of eucalypt and acacia woodlands with scattered freshwater springs, *gara* includes diverse ecological zones composed of monsoonal vine thickets, mudflats, dense stands of salt-tolerant eucalypt, mangrove swamps, tidal creeks and pools, beaches, dunes, and rocky shorelines (see Smith and Kalotas 1985 for review).

It was their proximity to the sea and the pearls that grow there that first led to intensive contact between Bardi and non-Aboriginal people in the nineteenth and twentieth centuries. Yet even before the arrival of pearl luggers (i.e., pearl-harvesting ships), Bardi people experienced limited interaction with the non-Aboriginal world. Glaskin (2002) reported that Southeast Asians began fishing off of the northern coast of Australia sometime during the eighteenth century and Bardi informants mentioned visits by Asian fisherman to at least one anthropologist (Robinson 1973). The first contact with Europeans most likely occurred somewhat earlier, following the arrival of the *Cygnet* and William Dampier in 1688 near present-day Cygnet Bay (Robinson 1973; Dampier 1998). Excepting a handful of exploratory expeditions to northwestern Australia during the nineteenth century (Glaskin 2002), the Bardi remained relatively insulated from both European Australia and colonialism until the arrival of the pearling industry in the late 1800s.

The arrival of pearling crews in the early 1880s substantially increased contact between Bardi and non-Aboriginal people (Glaskin 2002). In addition to spending long periods harvesting pearls in the same coastal waters that the Bardi relied upon for food, pearlers established semipermanent camps on the Dampier Peninsula. The sustained presence of pearling crews generated competition for resources. Water, in short supply nearly everywhere in Australia, became a source of conflict between lugger crews and Bardi men, as did access to Bardi labor and women and the pearlers' reliance on turtle and dugong (Glaskin 2002). These conflicts, which often turned violent, provoked governmental intervention and paved the way for the institution of colonialist enterprises in and around Bardi country. The settlement period that followed brought non-Aboriginal men and their families into close contact with the Bardi. Settlers leased land from the government and used it to run small pastoral operations and engage in trade with pearlers, which included selling Bardi men and women (Glaskin 2002). Abuse of Bardi people lessened with time, however, and some Bardi came to use the camps as a refuge from pearling crews and missionaries despite continued exploitation of men for labor and women for sex (Durack 1969; Robinson 1973; Glaskin 2002).

The two missions established in Bardi country had important effects on the people they were meant to protect. Located on the largest of a cluster of islands east of One Arm Point, the Sunday Island mission took a relatively tolerant approach to Bardi culture – allowing, even encouraging, Bardi people to maintain a traditional way of life (Robinson 1973; Glaskin 2002). The Catholic mission at Lombadina, located on the western side of the Peninsula just meters from the primary study site, took a less tolerant stance on tradition, ceremony, language, and family. Many older Bardi informants told me of their

experiences requesting permission to visit their families who lived on the dunes surrounding the mission or, in the event that they could not secure permission, sneaking out of the dormitories. In addition to separating children from their parents, the Pallotine monks who ran Lombadina prohibited ceremonial life and severely restricted other aspects of Bardi culture during the first half of the twentieth century (Worms 1970; Glaskin 2002). Not surprisingly, the mission at Lombadina continues to shape Bardi attitudes towards people of European descent, even though its missionary enterprise is defunct and it now operates as a school staffed by secular teachers and administrators.

Today, nongovernmental organizations (NGOs) stand as the most visible colonialist force in Bardi country, as a consequence of key shifts in Australian politics. The most relevant of these shifts took place in the early 1970s, when the government moved from a policy of Aboriginal assimilation to one of self-determination. This change in policy afforded Bardi people substantially more freedom, both individual and collective, while drawing them into governmental bureaucracy more directly than before. The shift also necessitated more administrative structures to liaise between the Commonwealth, state governments, and Aboriginal Australians (Hollinsworth 1996; Gibson 1999). NGOs have now taken over administration of most social programs in Bardi country, maintaining both the programs themselves and a dense bureaucratic system established during the transition from missionary to governmental oversight. Instead of working for supplies like tea, sugar, and flour, as they did in the missionary days, many Bardi now find themselves involved in a complex matrix of work programs, welfare schemes, job skills training, and social support networks overseen by Australian and international NGOs.

A Bardi man's ability to navigate this bureaucratic maze and turn the system in his favor constitutes a major determinant of status in contemporary society. Successfully negotiating the bureaucracy may result in a number of status-linked benefits, including recognition as an authority in local policy decisions, improved chances of securing infrastructure for a family outstation or the local community, and, perhaps most importantly, increased access to money (Bennett 1999). Although a monetary economy only emerged in Bardi country with the decline of the missions a half century ago, money now plays an essential role in nearly everyone's life. Perhaps nothing illustrates this point better than the observation that money underpins subsistence among the Bardi – a pattern that contrasts greatly with that of a few generations ago, when the Bardi lived as full-time foragers.

With the exception of animal protein gained from the sea and, less often, from feral cattle, Bardi people purchase most of their food from stores located in the three main communities. Furthermore, the tools most commonly used to harvest wild foods (e.g., aluminum dinghies, spearguns, rifles, hooks, lines, and sinkers) must be bought or borrowed from friends and relatives. All of this requires money, which leads to increased status for individuals who have more of it. Not surprisingly, community members accord those men and women who work for a living a degree of prestige. For the most part, their jobs do not earn them much more than would enrollment in the various social welfare schemes alluded to above. The rather slim margin between most wage earners' income and that of other, less industrious community members does not stop the latter from both arguing that the workers have "too much" and regularly asking for monetary assistance. Although their pay may not be much more than the average welfare check and though it

may set them up as targets for demand sharing (Peterson 1993), workers' autonomy from direct governmental assistance commands admiration since welfare is often denigrated as "sit down money" by Bardi people, especially those of older generations.

The advent of a monetary economy is not the only way in which status acquisition has changed among the Bardi. The cultural knowledge that men use today to assert their authority and challenge that of their rivals has expanded in scope. Whereas early ethnographers reported older Bardi men gaining social standing on account of their ritual knowledge (Elkin 1935a; Elkin 1935b; Worms 1950; Worms 1952), men today use a wide range of knowledge, including, for example, ecological and linguistic. Men both assert their authority with different kinds of knowledge and apply it in novel situations. Law bosses or *madjamadjin* can benefit from their social standing through nominations to advisory boards and employment as cultural advisors, for example, which carry material benefits as well as social ones. Furthermore, hunting large marine animals has changed due to the advent of harpoons, dinghies, and outboard motors. The effects that these tools had on men's status competition remain uncertain due to a lack of historical materials against which to compare the contemporary picture. It seems likely, however, that new forms of technology have increased hunters' rates of success.

3.3 Data collection and analysis

Previous investigations of status and reputation have relied upon three methods, either singly or in combination: pile sorts (e.g., Patton 2005; von Rueden et al. 2008; von Rueden et al. 2011) and relative ranking (e.g., Hill and Hurtado 1996), nominations (e.g., Blurton Jones et al. 1997; Marlowe 1999; Wiessner 2002), and direct observation (e.g.,

Kaplan and Hill 1985; Hawkes et al. 2001b; Alvard and Nolin 2002; Wiessner 2002). Data for this study come from nominations, where subjects listed as many individuals as they thought fit the criteria of a given question (e.g., “Who are some Bardi men that have good jobs?”). Open-ended nominations allowed the subjects to be as inclusive or exclusive as they desired. This flexibility may have led to less precision when compared with pile sorts, but, by leaving the pool of potential nominees unconstrained, it ensured that subjects could nominate all relevant individuals without having to rank people they did not know much about. Compared with direct observation, nominations allowed efficient data collection regarding multiple venues of status seeking. They also tracked an individual’s reputation among his audience, which both reflects individual success (see, for example, Blurton Jones et al. 1997; Marlowe 2010) and is a key indicator of status (von Rueden et al. 2008).

The participant pool included 51 Bardi men and 38 Bardi women. The sample consists of all Bardi men and women 15 years and older who lived in Djarindjin or an affiliated outstation (population = 224) and consented to giving an interview. Ages ranged from 15 to 65 (mean = 33.35) for men and 19 to 79 (mean = 40.87) for women. Participants represented 13 major clans (defined here as a group with widely recognized ties to a specific part of Bardi country or *buru*; see Robinson 1979, Smith 1987). The majority of participants (39/51 or 76.5% of men, and 33/38 or 86.8% of women; 72/89 or 80.9% overall) resided in Djarindjin, the second largest community in Bardi country (Australian Bureau of Statistics 2006).

All other participants resided on family-owned outstations or “blocks.” Living on a block instead of a community carried important consequences for status-linked aspects

of everyday life, including employment prospects and social interaction, among other things. With a few exceptions, families built their blocks near the coast and far from the main road. This necessitates driving between two and twenty kilometers on poorly maintained, sometimes-impassable dirt roads before reaching the main (paved) road through Bardi country. The costs of transportation to and from blocks generally prohibit rural-living Bardi men from securing long-term employment, unless, as in a few cases, the job includes access to a vehicle and fuel. Transportation costs also limit block-dwelling men's interaction with the wider community, and lead them to participate in community life less frequently than residents of Djarindjin, Lombadina, and One Arm Point.

I identified status-linked behaviors by participant observation and by conducting informal interviews with key informants, including research assistants. After eliciting a wide range of potentially status-linked activities using these methods, I informally evaluated whether and how well each activity incorporated the characteristics of useful signaling behaviors (e.g., costliness, material benefits for audience members, potential to elicit beneficial behavior from audience) as well as the feasibility of investigation (certain ceremonial activities cannot be discussed with uninitiated men, for example). This process left me with five venues of status competition, including accrual of traditional and ceremonial knowledge, hunting large game, wage labor, navigating bureaucracy, and working to improve the community.

I collected nominations of men who excelled in these activities as well as self-reports of participation during interviews conducted with the help of Bardi research assistants. Since Bardi speak a Bardi-English creole, research assistants provided some

linguistic help, but did not act as interpreters in the traditional sense. Interviews included two types of questions. The first type elicited self-reports of participation in status-linked activities. The resultant data acted as a control for nomination data (see analysis below). The second type of question elicited nominations of high status Bardi men. These questions focused on the five venues of status competition (traditional cultural knowledge, hunting, making money, navigating bureaucracy, and community leadership) identified during open-ended interviews with research assistants and other community members. Participants could nominate as many Bardi men as they liked for each venue of status competition, though I excluded nominees from analyses if they had not provided participation data.

While behaviors associated with hunting and making money will be apparent to most readers, the other three competitive domains warrant description. Today, cultural knowledge consists of the songs, dances, stories essential to ritual life as well as ecological and linguistic knowledge that was once commonly known, but has become rare. Navigating the bureaucracy refers to the skill some Bardi men show at engaging with the bureaucratic process. This translates into paid positions on councils and committees, work as cultural advisors, and consultation jobs with both governmental agencies and NGOs. While such men were often nominated as “men who do good things for this community,” they were not the only ones. Community leadership involved a nebulous array of behaviors. Standing up for “community interests” in meetings certainly constituted one such behavior. Other examples included: bringing wild foods to unrelated, elderly community members; maintaining infrastructure like the local airport

and often washed-out dirt roads (even as part of a paid work); and providing access to automotive tools.

All statistical analyses took place using R statistical software (R Development Core Team 2011). Before beginning analyses, I used multiple imputation (Little and Rubin 2002) to estimate missing values for the number of turtle killed in the past year, the number of dugong killed in the past year, and the average number of hunting trips per month. I imputed only these values since missingness resulted from modesty or uncertainty, whereas all other missing values were a consequence of interview structure (e.g., men who were never married had broken the rules of proper marriage “NA” times). Imputation uses all available data to replace missing entries with realistic values – in effect, a more rigorous form of bootstrapping. Imputing missing values allowed me to generate more accurate models of the relationship between nominations as a good hunter and self-reported hunting data.

I then estimated correlations between self-reported data and nominations for cultural knowledge, hunting, making money, and bureaucracy (see Figure 3.1). I did not find a feasible way of relating nominations as a community leader to self-reports. Each of the analyses relied on a linear regression with negative binomial error (since the distribution of nominations always included a large proportion of zeroes) where:

$$y \sim nbinom(\beta_0 + \beta_1 + \beta_2 + \beta_3, size) \quad (\text{Eq. 3.1})$$

Size is an error term and β_0 is the intercept. The models included two or three predictor variables and all controlled for age effects (see Table 3.1). In Table 3.1, AGE refers to

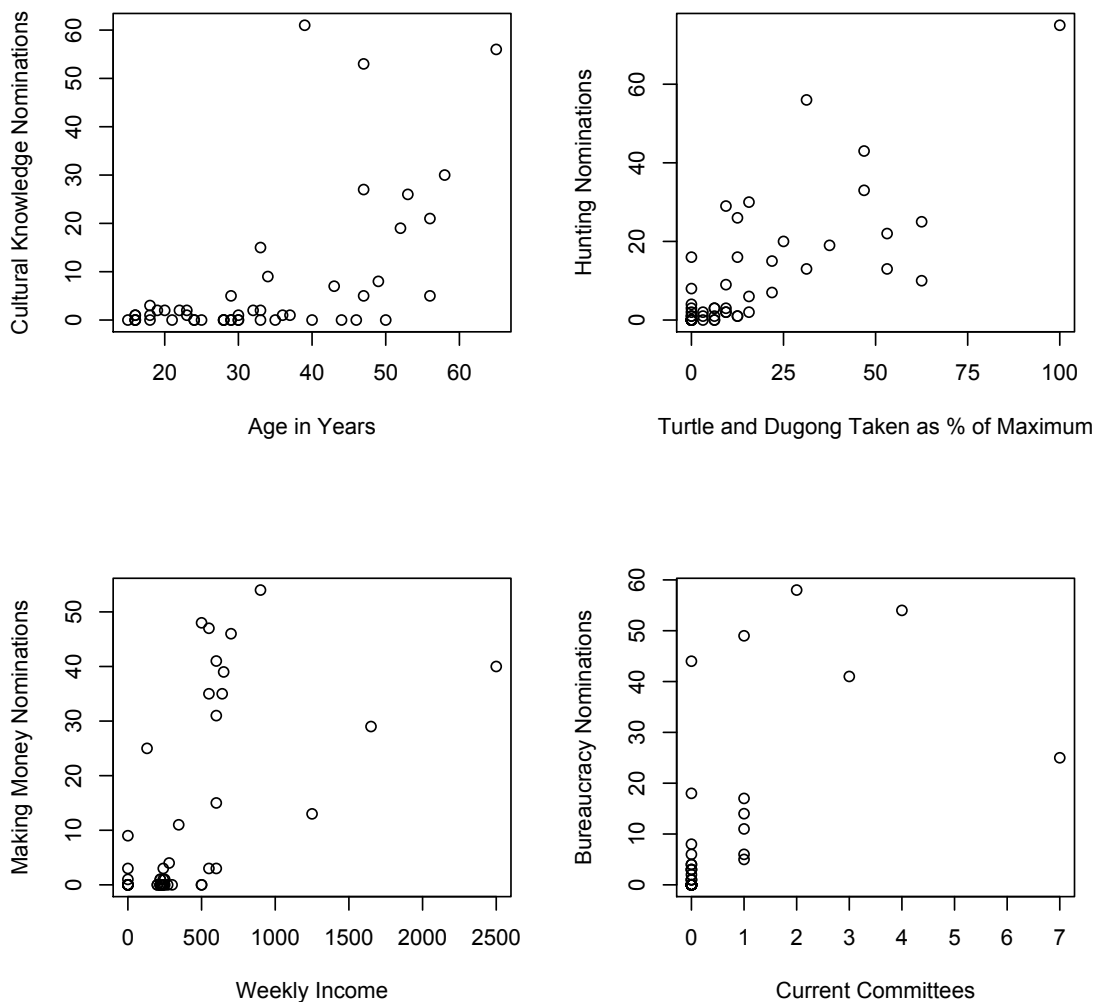


Figure 3.1: Nominations as a function of self-reported participation data. The horizontal axis shows the most reliable predictor variable for each category of nominations (defined as having the greatest effect size and narrowest 95% confidence interval in Table 3.1).

age in years at the time of the interview, CCM is the number of committees currently served upon, DAD indicates whether or not the interviewee's father had a traditional godparent or *jawool*, HVST refers to the combined number of turtle and dugong harvested in the past year, INC is weekly income, JBH is whether the interviewee had a job in Bardi country, and JGT is the age at which an interviewee was given a *jawool* or traditional godparent.

Table 3.1: Linear models of nominations as a function of self-reported participation. Error is distributed binomially and indicated by the size parameter. Values in parentheses indicate 95% confidence intervals. See text for discussion of predictor codes.

	Predictors	Intercept	Beta 1	Beta 2	Beta 3	Size
Bureaucracy	CCM, JBH, AGE	-0.70 (-3.09, -0.15)	13.91 (3.94, 46.12)	3.52 (-0.62, 7.82)	0.05 (0.02, 0.22)	0.43 (0.25, 0.87)
	Culture	DAD, JGT, AGE	-5.17 (-14.29, 14.59)	6.62 (-7.90, 14.48)	4.73 (-10.08, 11.20)	0.22 (-0.11, 0.91)
Hunting		HVST, AGE	2.36 (0.68, 5.21)	1.72 (1.04, 2.83)	-0.02 (-0.07, 0.04)	-
	Making Money	INC, AGE	-0.79 (-3.63, 1.47)	0.02 (0.01, 0.05)	0.06 (-0.01, 0.25)	-

After comparing self-reports to nomination data, I investigated the degree to which men specialize in venues of status competition. The dotted red line in Figure 3.2 represents a simple economic model where, since time and resources are finite, increased success in one venue correlates with reduced success in another. I expected to find this type of relationship between nominations earned in different venues if men specialized. In contrast, phenotypic heterogeneity would lead to the exact opposite pattern if it allowed some men to excel at many activities – shown in Figure 3.2 as a solid green line. To determine which pattern best describes the data, I generated a matrix of scatterplots and fitted logistic regressions with a beta-binomial error distribution to each plot. The data and regression lines (color-coded to match Figure 3.2) appear in Figure 3.3.

Since I relied on a beta-binomial error distribution, the values in Table 3.2 (95% confidence intervals in parentheses) do not correspond to simple correlation coefficients, but proportional odds. Proportional odds describe the probability of observing a larger y value given a one-unit increase in x . Associations greater than one therefore indicate a relationship like the one signified by the green line in Figure 3.2. In contrast, associations

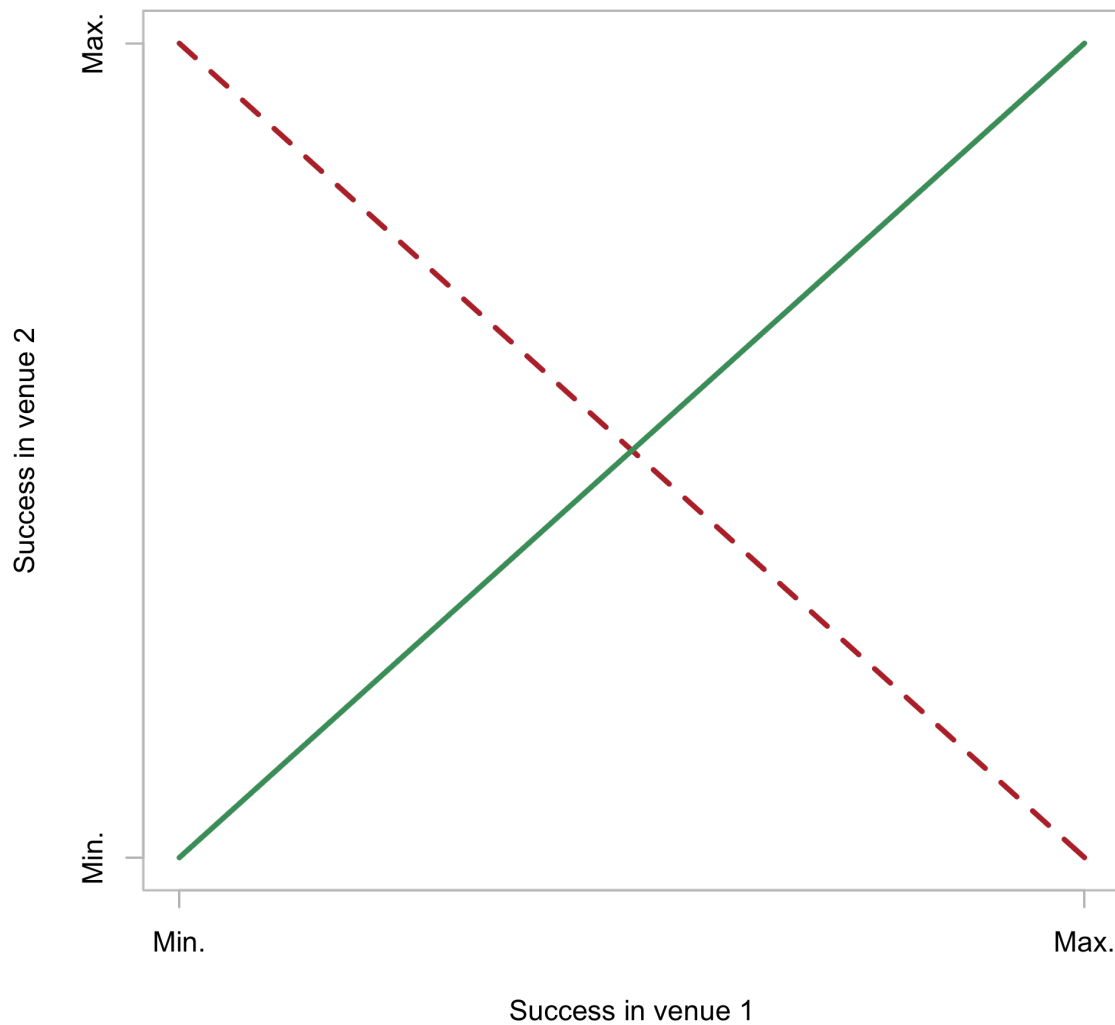


Figure 3.2: Models of success in two venues. Specialization of the type predicted by simple economic theories of behavior should lead to relationships like the red dashed line. The commonly reported ethnographic pattern where some men can do many things well should produce relationships that look like the solid green line.

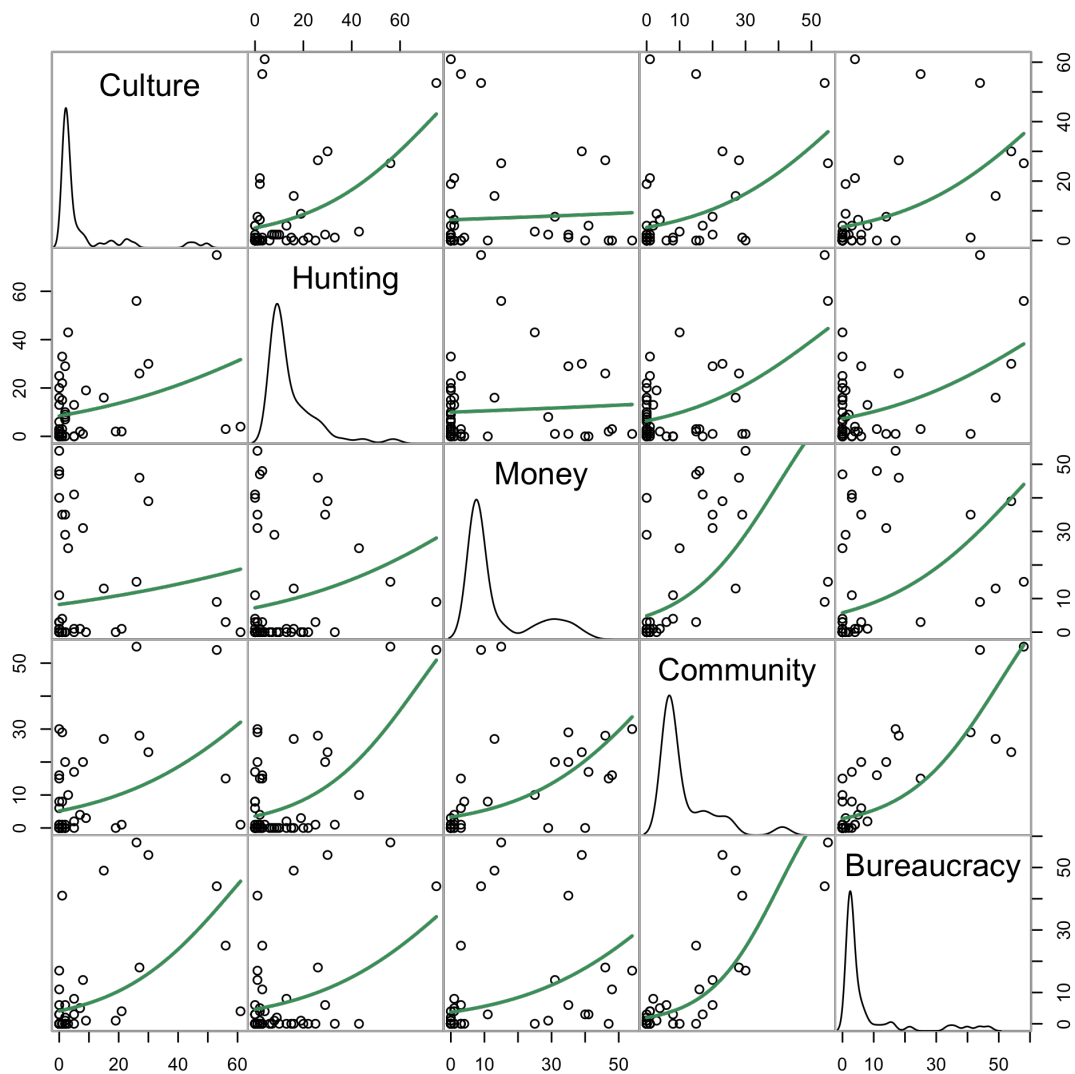


Figure 3.3: Scatterplot matrix of nominations in five competitive venues. Lines correspond to best-fit logistic regressions (assuming beta-binomial error) and are color coded to match Figure 3.2. The diagonal shows a frequency distribution of individuals per nomination count.

Table 3.2: Proportional odds of nominations in one venue as a function of nominations in another. Odds estimated using a logistic regression with beta-binomially distributed error. Values in parentheses indicate 95% confidence intervals. Estimates greater than one indicate a positive relationship between nominations in two venues while values less than one indicate a negative relationship. Values further from one in either direction indicate stronger relationships.

	Culture	Hunting	Money	Community	Bureaucracy
Culture	1 (1, 1)	1.04 (1.02, 1.06)	1.01 (0.98, 1.03)	1.05 (1.02, 1.07)	1.04 (1.02, 1.07)
Hunting	(1.01, 1.05)	1 (1, 1)	1.01 (0.99, 1.02)	1.05 (1.02, 1.07)	1.04 (1.02, 1.06)
Money	(0.99, 1.04)	1.02 (1.00, 1.05)	1 (1, 1)	1.07 (1.04, 1.12)	1.05 (1.02, 1.07)
Community	(1.01, 1.06)	1.05 (1.02, 1.07)	1.05 (1.03, 1.07)	1 (1, 1)	1.07 (1.05, 1.09)
Bureaucracy	(1.03, 1.08)	1.03 (1.00, 1.06)	1.04 (1.02, 1.07)	1.10 (1.07, 1.13)	1 (1, 1)

less than one suggest the kind of specialization represented by the red line in Figure 3.2. Note that the matrix of entries is not symmetric, since the order of dependent and independent variables affects estimates of proportional odds. An intuitive illustration of this is to compare panels in Figure 3.3 that fall on opposite sides of the diagonal. Flipping the axes changes the shape of scatterplots and leads to different regression estimates. In addition to the regressions shown in Figure 3.3 and Table 3.2, I constructed a hierarchical model, which, although more complicated and rigorous, yielded similar results (see Appendix).

3.4 Results

The key assumption linking the models shown in Figure 3.2 to nomination data is that a man's success in an activity corresponds to nominations he received. The analyses shown in Table 3.1 and Figure 3.1 suggest that this assumption is a safe one. The values in Table 3.1 suggest some variability in the degree of agreement between self-reports and

nominations, however. While models of hunting and income show relatively clear relationships between predictors and nominations, wide confidence intervals around predictor variables in models of bureaucracy and cultural knowledge suggest that these measures are not as good at capturing the relationship between participation and nominations.

Figure 3.3 shows a scatterplot matrix of comparisons between nominations earned in different venues of status competition. The diagonal shows a frequency distribution of nominations for each venue of status competition. In contrast to the predictions of a are positive (see Table 3.2 for estimates of proportional odds). These results support the hypothesis that high status Bardi men do most things well. For Bardi men, more nominations for one activity correlate with more nominations for the others. I discuss these findings in more detail below.

3.5 Discussion

Like their counterparts in other ethnographic situations, high status Bardi men manage to do many things well. In light of the diverse array of behaviors that Bardi men exploit, this result attests to the flexibility inherent to men's status seeking strategies. While some individuals specialize, high status men are widely recognized for their success in nearly every competitive domain, suggesting that men face different status-based decisions, perhaps due to variation in underlying aspects of phenotype (von Rueden et al. 2008). Further variation, this time in the relationships between nominations (where some competitive venues correlate strongly with one another while others show weaker ties), may indicate that success in some activities requires unique skills or

attributes that then limit success in other venues – at least for some men. Outside factors such as governmental policies or the primacy of ritual concerns may contribute to this variation via their influence on the utility of certain domains of status competition for Bardi men. Though the details of these findings are specific to the Bardi, they nevertheless carry important implications for our understanding of variation in men's status-linked behavior and human prehistory.

Positive associations between measures of success in all five status-linked behaviors are the most significant findings of this research. The positive relationships of nominations across venues (see Figure 3.3 and Table 3.2) suggest that a substantial fraction of Bardi men manage to do many things well. Furthermore, the absence of negative proportional odds suggests that generalists had such a large effect that they overwhelmed the statistical signature of specialization. Figure 3.3 and Table 3.2 show the strong ties between nominations for community leadership, navigating bureaucracy, and all other venues of status seeking. Regardless of whether community leadership and navigating bureaucracy are input or outcome variables, the resultant estimates of proportional odds are larger than one and none of the confidence intervals include values less than one (see rows four and five in Figure 3.3 and Table 3.2).

Unlike the strong ties between community leadership, navigating bureaucracy, and all other venues, the relationships between cultural knowledge, big game hunting, and money making are more variable (see rows 1–3 in Table 3.2 and Figure 3.3). Regressions of cultural knowledge and hunting acumen produced proportional odds greater than one with confidence intervals also greater than one – suggesting robust positive relationships between nominations in these venues. Each venue's relationship to

making money, however, was less clear. Specifying cultural knowledge nominations as a function of making money produced a relatively small proportional odds estimate (1.01) and a confidence interval that included values less than one (0.98, 1.03). Hunting success as a function of making money produced an equally small estimate of proportional odds (1.01) with a similar confidence interval (0.99, 1.02). Models that switched the input and outcome variables (money making nominations as a function of cultural knowledge and hunting, respectively) generated larger proportional odds, but still led to confidence intervals spanning values above and below one.

Of all of the relationships I analyzed, only these do not strongly support my hypothesis. Anecdotal evidence suggests a few plausible explanations for the weakness of these relationships. Many, but not all, of the men who engage in wage labor spend a substantial amount of time away from Bardi country, which compromises their ability to glean cultural knowledge from older men and to hunt. In addition, two of the young men who had good jobs reported having few relatives, if any, that would traditionally have been responsible for their cultural education. A lack of suitable elders would have made it very difficult, if not impossible, to gain cultural knowledge – even if they did not work elsewhere (cf., Scelza 2010).

Taken together, these results demonstrate Bardi men's successful incorporation of both relatively recent status-linked opportunities such as wage labor and key changes to long-standing competitive domains (e.g., the introduction of new hunting technology). Such flexibility stands in contrast to patterns observed elsewhere, in which older, well established men miss out on new chances for gaining status (e.g., Sharp 1952; von Rueden et al. 2008). This discrepancy may result from a lag between the advent of these

new techniques and behaviors and my recording of their usage. Unlike von Rueden and collaborators (2008; 2011), I collected data decades after the emergence of new competitive venues. Young Bardi men may have been early adopters of novel opportunities in the twentieth century. Even if the ascendancy of young men undermined the authority of their elders (Sharp 1952) in the 1970s when wage labor and the bureaucracy first emerged, however, those men are now elders themselves and their skill in these domains has reestablished the preeminence of older men in Bardi society.

Today, young men gain recognition in slightly different ways than their elders. Men aged 15 to 24 ($n = 17$) received a relatively high number of nominations as successful hunters (hunting: nominations = 207, number of individuals = 14; making money: nom. = 115, $n = 6$; community leadership: nom. = 55, $n = 6$; culture: nom. = 15, $n = 9$; bureaucracy: nom. = 8, $n = 2$;). This stems from a number of factors. Few young men have jobs (6/17 or 35%) to limit their time on the water. (Though it should be noted that those who do have jobs tend to stand out, judging from the large number of nominations they accrued for making money.) In addition to having more time to spend doing it, hunting seems especially attractive when compared to young men's alternatives. Unlike cultural knowledge, which requires decades of instruction, young men can usually start building a reputation as effective hunters in their late teens. Negotiating bureaucracy is also an older man's game. Since young men are generally ineligible for bureaucratic programs (aside from job-skills training), they have few chances to gain renown this way. Doing good things for the community, in contrast, should not be age-restricted. Perhaps this explains the substantial number of nominations earned by young men. Still, the four-

fold disparity between it and hunting suggests that young men prefer to chase turtles rather than look after old people or pick up trash.

In contrast to the general pattern shown in Figure 3.3, some Bardi men continue to specialize in a limited number of competitive behaviors throughout life. This observation is highlighted in Table 3.3, which shows nominations indexed by age for all 51 men included in this study. The bolded rows in Table 3.3 demonstrate some key attributes of specialization. For the purpose of this discussion, I consider men in the third quartile or above of nominations for a particular behavior to be successful in that venue (cultural knowledge ≥ 5 nominations, hunting ≥ 16 , making money ≥ 14 , community leadership ≥ 13 , navigating bureaucracy ≥ 6). Specialists are men who succeeded in only one or two venues (n=16). Among the youngest men (≤ 20 years old), successful status competition always included big game hunting. The only young man who succeeded outside of hunting had a high status, high-paying job in Bardi country. The next age class (21-30) shows increased diversity in specialist behavior, with some individuals pursuing hunting, others pursuing wage labor and community leadership, and one man specializing in navigating bureaucracy. By age 31, some men gain recognition for their cultural knowledge – suggesting that they can specialize in any status-linked behavior. The positive relationship between age and cultural knowledge nominations fits with broader patterns of age-dependent acquisition of knowledge among many Aboriginal groups (e.g., Strehlow 1970; Myers 1991; Elkin 1994; Hiatt 1996; Bird and Bliege Bird 2010). Interestingly, very few Bardi men (n=2) specialize in navigating bureaucracy; the majority of men (12/14 or 86%) who fell above the cutoff for success in navigating bureaucracy also succeeded in at least two other venues. This pattern likely results from

Table 3.3: Nomination counts indexed by age.

Age	Culture	Hunting	Money	Community	Bureaucracy
15	0	16	1	0	0
16	0	0	0	0	0
16	1	15	0	0	0
16	0	6	0	0	0
16	0	0	0	0	0
16	1	22	0	0	0
18	0	13	0	0	0
18	3	43	25	10	0
18	1	33	0	1	0
19	2	7	0	0	0
20	2	10	0	0	0
21	0	1	3	0	0
22	2	29	35	20	6
23	1	0	4	8	0
23	2	9	0	0	2
24	0	2	47	15	0
24	0	1	0	1	0
25	0	1	0	0	0
28	0	0	3	6	6
28	0	20	0	0	0
28	0	25	3	1	0
29	0	0	40	0	3
29	5	0	0	0	0
29	0	2	0	0	0
30	0	3	48	16	11
30	1	3	0	0	0
30	0	3	0	0	0
32	2	8	29	0	1
33	15	16	13	27	49
33	2	0	0	1	0
33	0	0	1	0	0
34	9	19	0	3	1
35	0	0	0	0	0
36	1	0	0	0	0
37	1	1	35	29	41
39	61	4	0	1	4
40	0	0	0	0	0
43	7	2	1	4	5
44	0	0	0	0	0

Table 3.3 continued

Age	Culture	Hunting	Money	Community	Bureaucracy
46	0	0	11	8	3
47	27	26	46	28	18
47	5	0	41	17	3
47	53	75	9	54	44
49	8	1	31	20	14
50	0	1	54	30	17
52	19	2	0	0	1

outside organizations' preference to work with responsible, well-respected community members.

From a conceptual standpoint, these findings indicate that Bardi men do not all face the same tradeoffs regarding status seeking. As suggested by previous authors (e.g., Winterhalder and Smith 2000; Sear 2008; von Rueden et al. 2008), such differences may be due to phenotypic variation or heterogeneity. Phenotypic heterogeneity has been shown to affect aspects of human physiology, morbidity and mortality, fecundity, and lifetime fertility (Barker and Osmond 1986; Müller et al. 2002; Gluckman et al. 2008; Gagnon et al. 2009; Hawkes et al. 2009; Smith et al. 2009; Hawkes 2010) as well as animal behavior (van Noordwijk and de Jong 1986; Pettifor et al. 1988; Alatalo et al. 1990; Jennions et al. 2001; Roff and Fairbairn 2007); it seems likely that it also affects some aspects of human behavior. Assuming an “average individual” and thereby ignoring phenotypic heterogeneity may produce misleading findings regarding status-seeking behavior.

Like heterogeneity, the implications of these findings for our understanding of human evolution should not be overlooked. In a 2006 publication, James O'Connell suggests that status competition associated with hunting big game may have been partly responsible for the eventual extinction of Neanderthals. He argues on the basis of extant archaeological data that Neanderthals maintained an unexpectedly narrow diet focused on high-risk, calorie-rich large game and devoid of the small, less profitable prey species taken by anatomically modern humans. The heavy reliance of Neanderthals on higher-ranked prey, despite declining abundance, may have resulted from the energetic demands of their physiology. Alternatively, he suggests that maintenance of this diet may have

been a consequence of Neanderthal men's concern with acquiring status through big game hunting.

The findings reported here suggest that rigid adherence to one form of status competition was unlikely. If the behavior of anatomically modern humans (AMH) constitutes a useful analogue for that of Neanderthals, the status-linked behavioral flexibility demonstrated by men in Bardi country makes it unlikely that archaic males would have been limited to just one venue of status competition. Even if Neanderthal males engaged in no other status-linked behaviors aside from hunting large game when they first encountered AMH, the propensity of Bardi men to take advantage of novel opportunities implies that Neanderthals should have been able to transition to alternatives to hunting in the face of decreasing populations of large animals.

As O'Connell argues, however, factors outside of an individual's control can influence which venues of status competition are suitable to him. O'Connell describes the choices faced by Hadza men whose pastoralist neighbors have gradually driven large animals, and therefore Hadza men's primary means of status acquisition, out of the landscape. Hadza men can either continue to rely on the status garnered by hunting increasingly rare large animals or try something else – raising livestock in this case. He states that:

For Hadza men... their best route to social and reproductive success within their own society lies via big-game hunting and aggressive scavenging... Moving to a pastoral lifestyle takes a Hadza man away from these rewards and puts him in a competitive milieu where other men, none likely to be easy allies, have all the advantages. On balance, his best option must be to stay with the lifestyle he was born to until circumstances favoring its resurgence emerge, or the opportunity to pursue it finally evaporates. (2006)

Though this argument convincingly accounts for the Hadza case, big game hunting Neanderthals did not face a transition as dramatic as a switch from foraging to pastoralism.

Yet the broader lesson of the Hadza case applies to Bardi men's status seeking. Even in Bardi country, men's flexibility is not boundless. As in much of Aboriginal Australia, the acquisition of ceremonial knowledge depends upon a young man's access to his elders and his ability to please them (Strehlow 1970; Myers 1991; Elkin 1994; Bird and Bliege Bird 2010). How quickly and deeply he learns the essential components of manhood determine crucial aspects of his place in society (such as eligibility for marriage) and depend on his relationships to the men who hold them. Such a situation, where one form of status structures so many aspects of a man's life, constrains an individual's ability to engage in certain other venues of competition.

In the Bardi case, as in many others in Aboriginal Australia (Meggitt 1965; Strehlow 1970; Myers 1991; Tonkinson 1991; Hiatt 1996), strong ties between status, authority, and spiritual knowledge mean anything that limits a young man's exposure to his elders and their knowledge also limits his standing in the community. For example, young men often leave Djarindjin for long periods – decades in some cases. Some leave to find work, others follow women they met in Broome, and still others go to visit relatives. Those who leave before or during the time they should be learning from their elders rarely manage to catch up to their age-mates in terms of status and authority despite the monetary resources and useful skills they often bring back.

The observation that forces outside of a man's control can affect the utility of behaviors that he might use to gain status does not imply that that these forces only work

to limit a man's options. The emergence of bureaucracy as a means of gaining status demonstrates that outside forces can lead to new opportunities just as readily as they limit the appeal of others. What the Bardi case shows is that social, ecological, and historical details matter. Because of these details, certain opportunities are more suitable for the status quest than are others. It is these details that give rise to the remarkable diversity of male status-seeking behaviors found in human societies.

CHAPTER 4

PATHWAYS TO PROMINENCE: THE PROLIFERATION OF VENUES FOR ELICITING DEFERENCE AMONG MALES IN GENUS *HOMO*

4.1 Abstract

Status, or received deference, is important to male primates. Men are no exception, though their pursuit of deference differs in important ways from that of nonhuman primate males. Humans rely on a wide array of behaviors to improve their social position – and we display a remarkable capacity for taking advantage of new opportunities. Furthermore, in comparison to nonhuman primates, physical confrontation and agonism are less central to achieving or maintaining social standing in the majority of human societies. Despite previous efforts, how and why these distinctive traits evolved remains unanswered. We review evidence and arguments for a novel approach, highlighting the ways that human competition for relative social standing depends on capacities tied to the emergence of cooperative rearing in our lineage. The cognitive changes favored by this life history shift led to a reduced role for physical contests and vastly increased the diversity of competitive domains for ancestral males.

4.2 Introduction

Relative social position is a key contributor to male fitness in many species. Usually characterized in animal behavior as dominance (Drews 1993), it shows close linkages to reproductive success or RS across taxa (Ellis 1995). It can affect physiology, access to resources and territory, and exposure to predation (Davies et al. 2011). Relationships among dominance, physiology, and fitness-linked behaviors hold for many mammalian species, including primates (Fedigan 1983; Strier 2011).

These links are well documented among the nonhuman great apes, our closest living relatives. In genus *Pan*, male rank exhibits a positive relationship with mating and reproductive success (*P. paniscus*: Kano 1996; Gerloff et al. 1999; Hohmann and Fruth 2003; Surbeck et al. 2011; *P. troglodytes*: Tutin 1979; Hasegawa and Hiraiwa-Hasegawa 1983; Morin et al. 1994; Nishida and Hosaka 1996; Constable et al. 2001; Vigilant et al. 2001; Boesch et al. 2006; Wroblewski et al. 2009). Like group-living males in other primate species (Strier 2011), male chimpanzees and bonobos determine their place in the social hierarchy through agonistic interactions (Hayaki et al. 1989; Kano 1996; Gerloff et al. 1999; Mitani et al. 2002; Hohmann and Fruth 2003; Newton-Fisher 2004; Wroblewski et al. 2009). Contests generally involve force or the threat thereof (e.g., display, chasing), but outright fighting is relatively rare as serious injury is a real and costly possibility (Goodall 1986; de Waal 2007). Despite unique forms of social organization (van Schaik 1999; Singleton and van Schaik 2002; Harcourt and Stewart 2007), gorillas (Harcourt and Stewart 1987; Robbins 1996; Robbins 1999; Watts 2003) and orangutans (Rijksen 1978; Galdikas 1981; Galdikas 1985a; Mitani 1985; Delgado and Van Schaik 2000) also use agonistic contests to assert their dominance and gain reproductive access.

When compared to the other apes, men's competitive behavior has a number of distinguishing characteristics. We nominate three as especially noteworthy. First, men resort to physical aggression, agonism, and confrontation more rarely than males in other ape species (Wrangham et al. 2006). Second, men rely on a diverse range of behaviors for eliciting deference from other group members. As we discuss below, male chimpanzees may derive social benefits from patrolling, raiding, and hunting colobus monkeys (Mitani 2009a), but their behavioral repertoire pales in comparison to human males. Third, men show a distinctive propensity to take advantage of new venues for competition.

These unique attributes lead to questions of adaptation and selection. What evolutionary forces could have led men to behave so differently from other male apes? Scholars have advanced a handful of arguments aimed at answering this and related questions. At one end of the spectrum are Barkow's arguments that human status differs fundamentally from nonhuman primate (NHP) dominance due to its symbolic nature (Barkow 1989:180) and the uniquely human trait of self-awareness (Barkow 1975). At the other end lie explanations like those of Ellis, who finds that the only differences between NHP dominance and human social standing derive from language and that these differences are a matter of degree, not kind (Ellis 1993a:34). A number of moderate arguments lie between these poles (e.g., Hawley 1999).

Yet even rigorous examinations such as those of Boone (1998) and Henrich and Gil-White (2001) leave essential evolutionary questions unanswered. Chimpanzees meet every condition that Boone (1998) nominates for the evolution of uniquely human processes, providing little insight into why our behavior differs from that of our closest living relatives. Likewise, Henrich and Gil-White argue that human behavior is rare

because a fitness valley “impedes [its] evolution” (2001:175). They do not, however, address what allowed humans to cross this valley.

Using ethnographic, ethological, and experimental evidence, we tie men’s lower aggression rates, breath of competitive venues, and attraction to new opportunities to the evolution of distinctly human sociality. At the root of our perspective lies the observation that, compared to other animals, humans have unique appetites for shared intentionality (Tomasello et al. 2005). While debate continues (Povinelli 2004; Penn et al. 2008), an expanding body of experimental data, collected primarily among chimpanzees, demonstrates that nonhumans do recognize others as intentional actors; but none display the consistent motivations and abilities to share intentional states that humans do (Tomasello and Call 2010; Hare 2011).

Building on recent work that links the human pattern of cooperative childrearing to the evolution of shared intentionality (Hrdy 2009), we tie shared intentionality to the much broader array of behaviors by which men gain deference as compared to their NHP cousins. Distinctively human motivations and abilities for achieving and maintaining mutual attention lend joint activities a special appeal (Call 2009; Tomasello and Call 2010). Our interest in joint attention makes a diverse range of activities especially engaging for humans (Tomasello 2009), opening up a wide array of behaviors in which men can jockey for social standing. At the same time, shared intentionality allows strategies that reduce the need to engage in costly physical contests – costs that animals generally do better to avoid (Maynard Smith and Price 1973; Maynard Smith and Parker 1976; Blurton Jones 1984) – by increasing the range of nonviolent behaviors men can employ to solicit deference.

Before reviewing the current state of knowledge regarding shared intentionality and its emergence in our lineage, we summarize salient findings about male status competition in nonhuman primates, paying special attention to the centrality of physical agonism in relationships among male apes. We then highlight the social implications of hunting, patrolling, and raiding among chimpanzees. Data from Ngogo (Mitani and Watts 2001), Mahale (Nishida et al. 1992), and Gombe (Stanford et al. 1994) suggest that hunting colobus monkeys may be tied to alliance formation and maintenance among male chimpanzees, though this relationship may not obtain at other field sites (Boesch and Boesch 1989; Boesch 1994; Gilby 2006). Territorial patrolling may also be related to male-male relationships (Mitani 2009a).

We then compare these behaviors to status competition among men, using a population of part-time hunter-gatherers, the Bardi, to illustrate key aspects of male strategies in our species. Although particulars are unique to this group of part-time foragers living in northwestern Australia, findings from recent research on Bardi men's status seeking provide examples of general human patterns. Data come from the small (approximately 250 residents) Aboriginal community of Djarindjin, which sits on the western coast of the Dampier Peninsula near Broome, Western Australia (see Figure 1.1), as well as from historical accounts and previous ethnography. The men who live in Djarindjin rely on a wide range of behaviors to get ahead and men of high standing do many things well. As in many small-scale societies, physical confrontations between prominent group members are not a central part of male-male relationships (cf., von Rueden et al. 2008:404) and many well-respected Bardi men are neither imposing nor aggressive.

4.2.1 A note on terminology

Unlike other primates, where agonistic interactions reveal a clear picture of males' relative rankings, human social hierarchies can be more difficult to ascertain. In Western societies, researchers rely on socioeconomic status and the notion that social position reflects control over material resources (Ellis 1993a). In small-scale societies, however, status often means different things. Among egalitarian hunter-gatherers, for example, status cannot mean control over basic resources like food, water, and space since everyone has equal access (Woodburn 1982). Yet status among hunter-gatherers has long been a topic of interest (Sahlins 1959; Service 1962; Fried 1967), due in part to the unique insights that hunter-gatherers can provide about the evolution of human status competition (von Rueden et al. 2008).

Henrich and Gil-White suggest a way around these problems when they define status as “the amount of deference received” (2001:177). This definition could include access to basic resources among high status individuals without requiring it; deference provides opportunities to exercise personal power, but individuals can choose not to displace others. Furthermore, this definition applies equally well to dominance hierarchies among NHP males as it does to men – facilitating useful comparisons across species. We therefore follow the lead of Henrich and Gil-White in emphasizing deference as the basis of relative social standing in both human and NHP groups.

4.3 Deference among nonhuman great apes

Primates are remarkably social mammals. Males and females remain together throughout the year in less than 15% of known nonprimate mammalian species, yet the

African great apes all display permanent male-female association (van Schaik and Kappeler 1997). This mixed sex grouping provides several advantages (Wrangham 1980; van Schaik and Kappeler 1997; Stanford 2002), but living with others imposes considerable costs and within-group competition leads to dominance hierarchies (van Schaik and Kappeler 1997). Among males, these hierarchies relate to competition over mating opportunities (Wrangham 1980; Mitani et al. 1996; Nunn 1999; Kappeler 2000; Lindenfors et al. 2004) wherein some males achieve a substantial fraction of available paternity, while others are shut out entirely.

The complex social world in which male apes compete for deference, rank, and access to females requires sophisticated techniques of communication. Males signal and elicit deference in a number of ways, including loud generalized vocalizations (Mori 1983; Clark 1993; Mitani and Brandt 1994; Delgado 2006), spatial proximity and grooming attention (Nishida 1983; Wrangham 1986; Nishida and Hiraiwa-Hasegawa 1987; Koyama and Dunbar 1996; Nishida and Hosaka 1996; Dunbar 1998; Watts 2000; Newton-Fisher 2002; de Waal 2007), and threat displays and agonistic confrontation (Pusey 1980; Zucker 1987; Nishida and Hosaka 1996; Boesch and Tomasello 1998; Newton-Fisher 1999; Robbins 1999; Newton-Fisher 2002; Arcadi et al. 2004; de Waal 2007; Flack and de Waal 2007; Koski et al. 2007; Wittiger and Sunderland-Groves 2007).

Physical violence underlies the social calculus of every male nonhuman primate. Direct agonistic confrontation is the primary means of determining one's place in the male dominance hierarchy. Intense physical aggression between males is visible in all extant species (Wrangham and Peterson 1996; Plavcan 2000; Carrier 2007; Puts 2010).

Among chimpanzees, individual rates of aggression associate positively with rank at many study sites (Gombe: Bygott 1974; Tai: Boesch and Boesch-Achermann 2000; Mahale: Nishida and Hosaka 1996). Even relatively pacific bonobo males sort in linear hierarchies through physical aggression (Hohmann and Fruth 2003; Sannen et al. 2004; Surbeck et al. 2011; Surbeck et al. 2012).

Aggressive encounters can have serious consequences. Wild chimpanzees in a number of communities have directed lethal within-group violence toward junior males (Nishida et al. 1995; Fawcett and Muhumuza 2000; Watts 2004). Among chimpanzees, most conflicts over rank are ultimately determined through fights (Goodall 1986; Boesch and Boesch-Achermann 2000) and these confrontations sometimes result in lethal wounding (Goodall 1992; Nishida et al. 1995; Fawcett and Muhumuza 2000; Kaburu et al. 2013). Within group killings are far from aberrations, having been observed in the majority of chimpanzee study populations (Wrangham 1999).

Though we know less about the social relations of other apes, researchers have shown that they too rely on violence to improve or assert their rank. Bonobo aggression is similar to that of chimpanzees, though carried out with lower intensity and without coalitionary killing (Kanō 1992; Furuichi 1997; Hohmann and Fruth 2003). Fully flanged male orangutans take measures to avoid each other (Galdikas 1985a), possibly due to the physical costs of direct confrontations. Encounters between adult male gorillas at one study site ended violently in 80% of observed cases, and in 50% of those cases, males fought each other (Harcourt 1978). Additionally, prevalence of cranial trauma is twice as high in gorillas (11%) as in chimpanzees and these injuries are associated with male aggression (Jurmain 1997). Violent, sometimes deadly, conflicts with other group

members are part of life for male apes. However, combat is a very costly means of contesting one's place in the dominance hierarchy.

Males in genus *Pan* also have a few other means of jockeying for social position. Chimpanzee and bonobo males are hunters. The favorite prey of chimpanzees is the red colobus monkey, while bonobos appear less discriminating in their choice of target. Males hunt primarily with other males and are responsible for the majority of kills in hunting episodes (Goodall 1986; Boesch and Boesch 1989; Boesch 1994; Stanford 1996; Mitani and Watts 1999; Stanford 1999; Mitani and Watts 2001; Watts and Mitani 2002).

Many questions remain regarding the causes of hunting behavior in our closest relatives. Hunting may or may not be a tool for coalition building (Nishida et al. 1992; Stanford et al. 1994; Mitani and Watts 2001; Gilby 2006; Gilby and Wrangham 2008). Hunting may or may not increase mating frequency for hunters (Gomes and Boesch 2009). Hunting may or may not provide important nutrients to meat-deprived apes (Klein and Takahata 2002; Wrangham and Carmody 2010). One observation holds true, however: hunting draws an excited audience (Hohmann and Fruth 2008) in which chimpanzees and bonobos appear able to garner valuable information about one another.

Unlike hunting, which appears to occur opportunistically, territorial patrolling and raiding are deliberate acts conducted almost exclusively by males. Patrols and deeper raids into neighboring territory have been observed only among chimpanzees (Goodall 1986; Mitani and Watts 2005) and spider monkeys (Aureli et al. 2006). These behaviors are marked by wide participation with both high and low ranked males taking part (Wilson and Wrangham 2003); the single best predictor of patrolling behavior is the number of males present at a given time (Mitani and Watts 2005).

Patrols and raids appear to be single-minded efforts to seek out strangers either along the territorial boundary or well into the territory of a neighboring community, and inflict grievous injury on them. The universally hostile relations between chimpanzee communities create a mortality rate from between-group aggression that approximates that of human foragers (Wrangham et al. 2006). Participation in raids or patrols is costly, requiring hours of effort and forgone foraging time (Amsler 2010). The time spent patrolling cannot be spent on other social activities such as grooming or mating. And while attackers are rarely injured during such patrols or raids, a certain risk of injury inevitably accompanies joining a group of males bent on lethal aggression. The psychological strain is apparent by the behavior of participants.

Several possible benefits for such behavior have been proposed. Eliminating males from a hostile neighboring group may increase the victor's chances of successfully expanding their own territory by reducing the number of enemy males, thus allowing access to increased food resources and possibly attracting females into the new territory (Wrangham 1999). At least at Gombe, however, territorial expansion did not result in an influx of females, as females resident in the overrun territory were as likely to return to their natal group as to stay in their newly conquered home range (Williams et al. 2004). Expanded territory might allow for more and better food patches for individuals to exploit. Patrolling behavior does not significantly correlate with food scarcity or season (Mitani and Watts 2005), however. Territorial expansion has been observed at Gombe (Amsler 2010) and Ngogo (Mitani et al. 2010), but these expansions occurred over a ten-year period. Participants in any given patrol could hardly be motivated by such a delayed and uncertain pay-off.

Patrolling, like hunting, places participants in the company of their group mates under conditions that allow for the transmission of valuable information. Mitani has noted the social value of patrolling in several chimpanzee groups (2009a). By taking part in a patrol or raid, an individual may be signaling characteristics related to his value as a coalition partner that would be hard to observe otherwise. The importance of relationships in negotiating the complex social network, and the strong correlation between rank and mating success makes participation in socially reinforcing raids a high return behavior (Wrangham et al. 2006). In NHP species that regularly disperse and congregate, such as chimpanzees and spider monkeys, patrolling may provide an important means of distinguishing oneself as a more attractive ally.

4.4 Deference in Djarindjin

When compared to males of other ape species, men rely far less on physical aggression, use a more diverse range of behaviors to elicit deference, and show a distinct propensity to make use of new opportunities. Furthermore, the activities that men pursue vary dramatically across human societies – even among groups with similar ecological and economic circumstances. Among foragers, for example, big game hunting is a commonly exploited venue for male-male competition (Hawkes and Bliege Bird 2002; Smith 2004). Until recently, the Bardi relied only on the wild foods of tropical Australia – including meat from large animals. Unlike well-known tropical foragers on other continents (Hill and Hurtado 1996; Marlowe 2010), however, Bardi big game hunters focus primarily on marine animals. Moreover, this is far from the only venue of competition that owes its current form to the specifics of local history and ecology.

Despite the unique aspects of life in Djarindjin, the Bardi case provides useful illustrations of more general patterns, including men's avoidance of physical confrontation, the diverse ways that men pursue deference, and the human propensity to take advantage of new opportunities.

Bardi men of high standing are not generally known for their fighting prowess and most avoid the kinds of aggressive behavior and language that can lead to confrontations with their peers. Nevertheless, interpersonal violence is a part of life in Djarindjin, as is true in much of contemporary Aboriginal Australia (Sutton 2009). Though violence can be chaotic, certain regularities exist. The absence of highly regarded men from physical confrontations is one such regularity. This pattern emerges at least in part from the reluctance of prominent men to engage in physical confrontations. An altercation between two senior men of high standing illustrates how this reluctance can lead to nonviolent resolutions of tense situations.

Barbal (pseudonym), a well-respected, middle-aged man, arrived at the Djarindjin office to pick up his wife only to find her engaged in a verbal dispute with another woman. He intervened and admonished both women; saying he would take his wife home and suggesting that the other woman head home as well. The other woman left, but promised to return with her husband *Mardal* (pseudonym) – another prominent man of an age with *Barbal*. This promise constituted an escalation. Instead of heading home, *Barbal* stayed, gradually becoming more irritable as he waited for the couple to appear. When they did finally arrive, *Barbal* took off his shirt in readiness for a fistfight. *Mardal* appeared calm and asked *Barbal* to relax, to which *Barbal* responded by yelling provocations. Soon enough, the police arrived. There was no fight.

Though *Mardal* never said he called the police, their serendipitous arrival is suggestive. A handful of officers patrol the northern portion of the Dampier Peninsula, a jurisdiction of more than 150 square miles, which makes them a sporadic presence in Djarindjin. It seems likely that *Mardal* or one of his relatives called the police and that he set out for the office knowing they would arrive soon. If this circumstantial reasoning is correct, *Mardal* managed to pull off an elaborate political ploy. Not only did he avoid a risky physical confrontation, he also managed to do so without publicly backing down. Furthermore, the police ended up ticketing *Barbal* for his role in the encounter – a topic of conversation in the community for days afterwards. To many nonrelatives, *Barbal's* aggression seemed immature and reckless in comparison to *Mardal's* coolheaded interest in resolving things amicably.

Barbal had earned a reputation as a good fighter in his youth, but he had not been in a fight in over a decade. His standing in the community derived from other attributes, including ritual knowledge, hunting prowess, and long-term employment in a highly visible, service-oriented position in Bardi country. This mix of skills incorporates both traditional means of gaining deference (hunting and ritual knowledge) with a more novel form (wage labor) – a common pattern among Bardi men. According to ethnographic accounts (e.g., Elkin 1935a; Worms 1970; Rouja 1998) and interview data, both ritual knowledge and big game hunting have long been important means of eliciting deference. Beginning in the late 1800s, however, increasing contact with the Western world led to a number of new opportunities. Wage labor emerged in the mid-twentieth century, while the ability to negotiate with bureaucrats became a key skill starting in the late 1970s.

Bardi men have shown a remarkable propensity to make use of these opportunities as they emerge.

As in other ethnographic situations (Wiessner 2002; von Rueden et al. 2008; von Rueden et al. 2011), the most prominent men in Bardi country excel in a range of activities. As discussed in Chapter 3, I investigated men's involvement with five deference-linked activities: big game hunting, community leadership, navigating bureaucracy, ritual knowledge, and wage labor. I found that although some Bardi men specialize in a limited range of activities, the most prominent men are widely known for excellence in all five. Across a sample of 51 Bardi men, a good reputation in one of these behaviors correlates with a good reputation in all of the others (Figure 2.3). Furthermore, all men of high standing make use of both novel and traditional means of improving their social position.

Though reputations correlated across behaviors even when controlling for age, the most prominent Bardi men were middle-aged or older (rounded to the nearest integer, the top quarter of men averaged 42 years of age ($n=13$), versus 30 for the rest ($n=38$) of the sample). Senior Bardi men's utilization of relatively new opportunities such as wage labor and bureaucracy contrasts with patterns observed elsewhere (e.g., Sharp 1952; von Rueden et al. 2008) in which older men often missed out on new opportunities. This contrast is likely due to a century-long history of exposure to Western education and economy (Durack 1969; Glaskin 2002). Though wage labor became a viable means of eliciting deference in middle of the last century, Bardi encounters with the market economy began decades earlier with the local arrival of the pearling industry (Durack 1969; Glaskin 2002). Exposure to Western economies early in the 1900s likely reduced

the shock of midcentury changes for middle-aged Bardi men. Furthermore, though changes faced at the brink of the twentieth century may have immediately decreased the authority of Bardi elders, the young men who stood to benefit from their seniors' reduced role eventually became elders themselves. This observation suggests that senior men's loss of influence may have only persisted until younger generations grew old and themselves exploited venues that, if briefly overshadowed, beckoned as longstanding avenues to social power.

4.5 Implications of shared intentions

Humans have been widely characterized as cooperatively breeding apes (Hrdy 1999; Kramer 2005; Mace and Sear 2005; Burkart et al. 2009; Hill and Hurtado 2009). In her book *Mothers and Others* (2009), Hrdy identified the novel challenges that cooperative childrearing posed for ancestral infants, propelling the evolution of shared intentionality or the ability to understand and share in the mental states of others. This adaptation has profoundly affected social relations in our lineage (Tomasello et al. 2005; Tomasello and Carpenter 2007; Tomasello and Herrmann 2010), including how humans elicit deference. Our appetites for mutual attention and shared goals create diverse opportunities to compete for social standing, draw us to try new opportunities, and offer cheaper alternatives than within-group physical aggression.

In *Mother Nature* (1999), Hrdy highlighted the contrast between dedicated NHP mothers that have only one offspring to care for at a time and ambivalent human mothers who must balance the needs of multiple dependents and so cannot dedicate their attention to only one. Hawkes and collaborators (Hawkes et al. 1998; O'Connell et al. 1999) argue

that this divergence in parenting styles emerged due to global aridification and the retreat of African forests around 1.8 million years ago – about the time of the earliest evidence for *Homo erectus* (Klein 2009). Deforestation changed the suite of available dietary resources and reduced the ability of weaned juveniles to feed themselves, which provided an opportunity for vigorous older females with declining fertility to boost their inclusive fitness by provisioning their daughters' offspring.

If grandmaternal care allowed mothers to have their next baby sooner without reductions in offspring survival, the care requirements of multiple dependants would mean less maternal commitment to each offspring – making ancestral females more like litter bearers who trade off attention among dependents (Hrdy 1999). Without guaranteed and exclusive maternal commitment, selection on juveniles would have been substantial. The highly conserved attraction of adult primates to infants, or “baby lust” (Hrdy 1999; Hrdy 2009), meant that infants more adept at keying in on the mental states of mothers and alloparents had ready opportunities to attract and keep caretakers' attention and reinforce emotional bonds (Hrdy 2009). Infants even slightly better at holding maternal attention and extracting support from their mothers and alloparents were more likely to survive. Hrdy (2009) identified these selective pressures as the source of motivations and capacities for shared intentionality.

Interest in the intentions of others is evident soon after birth (e.g., Woodward 1999; Trevarthen and Aitken 2001; Reddy 2003; Tomasello and Haberl 2003; Hamlin et al. 2010; Hamlin et al. 2011) and continues to develop throughout childhood, reaching ever more refined levels of empathy and understanding. Shared intentionality, once selected for in infancy (Hrdy 2009), became enormously beneficial throughout the life

span (Tomasello et al. 2005; Tomasello 2009). Tomasello and collaborators (Tomasello 1999; Tomasello et al. 2005; Herrmann et al. 2007; Tomasello and Herrmann 2010) suggest that the maintenance of these skills for mind reading evolved due to their utility in fostering culture – a valuable human specialty. As Hrdy notes (2009:30), however, natural selection does not act on traits based on future value.

A phylogenetic perspective suggests that as shared intentionality evolved to deal with challenges faced in infancy, it proved useful for negotiating the complex social dynamics of adulthood. As de Waal illustrates in *Chimpanzee Politics* (2007), chimpanzees live in a complex social world in which relationships between group members are of the utmost importance (Goodall 1986; Boesch and Boesch-Achermann 2000; Reynolds 2005; Mitani 2009a). Bonobos appear to show a similar preoccupation with relationships (Gerloff et al. 1999; Hohmann and Fruth 2003; Marvan et al. 2006) – despite differences in key aspects of social life (Surbeck et al. 2011). The social lives of gorillas, though less complex than those of chimpanzees and bonobos, are also of great importance. Social networks center on dominant males, usually silverbacks (Harcourt and Stewart 2007), who intervene in disputes between females (Watts 1992), reduce predation risk, and guard juveniles against the threat of infanticide posed by other adult males (Harcourt and Stewart 2007). Even orangutans, the least social of the great apes (Delgado and Van Schaik 2000; Harcourt and Stewart 2007; Knott and Kahlenberg 2007), engage in high-stakes interactions with conspecifics (Mackinnon 1974; Rijksen 1978; Galdikas 1985b; Galdikas 1985a; Sugardjito et al. 1987; van Schaik and van Hooff 1996; Delgado and Van Schaik 2000; van Noordwijk et al. 2012).

This comparative evidence suggests that ancestral members of our genus likely lived in a complicated social world where the ability to share mental states with other group members would have been advantageous throughout the life course. Deference is one aspect of social life where shared intentionality may have had a substantial impact. We consider links between shared intentionality and the three distinct attributes of human deference elicitation outlined above, namely: the diversity of domains, propensity to adopt new opportunities, and scarcity of intragroup violence.

As Mitani has suggested (2009a), male chimpanzees engage in costly behaviors such as patrolling, hunting, and meat sharing that appear to carry social consequences (Watts and Mitani 2001). Though patrolling differs markedly from typical dominance interactions, it may act as a costly signal that advertises chimpanzee males' "quality as potential long-term allies" (Mitani 2009a:221). The same could be said of many status-linked behaviors in human societies (Hawkes and Bliege Bird 2002). Even if patrolling functions as a costly signal, however, and even if hunting and meat sharing serve a similar purpose (Nishida et al. 1992; Nishida and Hosaka 1996), they represent a narrow range of options when compared to the behaviors that men use.

Since adult chimpanzees lack the inclination and ability to share in the mental states of conspecifics, males must provide immediate and explicit benefits to audience members in order to hold their attention. Due to these constraints, males can productively engage in a narrow range of competitive behaviors. The evolution of shared intentionality relaxed these constraints in our lineage. From infancy (Reddy 2007; Wynn 2008), humans seek out shared mental states (Tomasello and Carpenter 2007), which means that

we readily join in the focused attention of others. With the evolution of shared intentionality, occasions for signaling expanded accordingly.

This is not to say that any behavior can become a longstanding venue for male-male competition; constraints exist. Classic papers addressing questions in human and animal behavior (Zahavi 1975; 1977; Grafen 1990; Maynard Smith 1991; Johnstone 1995; 1997) suggest that some behaviors share traits that may help maintain their utility as a form of communication. The framework of costly signaling proposes that effective signals convey hard-to-observe information and that the costliness of a signal ensures its honesty by preventing low-quality individuals from participating. If a receptive audience detects the signal and finds the information useful, members change their behavior to take advantage of it. If these changes serve the signaler's fitness, he continues signaling in the most efficient manner possible (Johnstone 1997). Evolutionary anthropologists argue that material benefits accrued to audience members as a consequence of behaviors like feasting (Smith and Bliege Bird 2000) and big game hunting (Hawkes and Bliege Bird 2002) enhance signal efficiency by providing additional incentives for audience attention.

The human desire to share mental states may affect the relationship between a signaler and audience, making it easier to gain and hold an audience's attention. Our interest in sharing mental states predisposes humans to pay close attention to the behaviors of conspecifics. Though other apes closely monitor the behavior of others (e.g., Galdikas 1985a; Hohmann and Fruth 2002; de Waal 2007; Harcourt and Stewart 2007), humans pay attention to behaviors and details thereof that other primates ignore or quickly lose interest in (Horner and Whiten 2005). This proclivity makes it relatively easy for human signalers to generate interest in behaviors that other apes would find

boring. It is hard to imagine a chimpanzee attentively watching a circus act, religious sermon, or football game, much less taking pleasure in doing so.

Once a signaler gains the attention of a group mate, their behavior becomes a joint activity and humans find joint activities especially appealing (Call 2009; Tomasello and Call 2010). Audiences provide opportunities for joint activity, which draws in more audience members and heightens the attention paid to signalers. The willingness of audience members to devote their attention to behaviors that other apes would find uninteresting makes it easier for humans to take advantage of new opportunities for eliciting deference. Instead of being limited to a few venues, men can make use of a broad array of new opportunities as they arise – pursuing the most effective and discarding the rest. Bardi men's use of wage labor and the local bureaucracy, both of which emerged in the latter half of the last century, exemplify this propensity.

The flexibility afforded by shared intentionality also reduces men's reliance upon within-group violence as a means of gaining deference. Organisms throughout the animal kingdom have developed sophisticated ways to avoid violent contests – often through a process of assessment (Parker 1974; Clutton-Brock and Albon 1979; Parker and Rubenstein 1981; Enquist and Leimar 1983; 1987; 1990). Assessment helps competitors determine their chances of winning a fight and thereby limits the costs of physical confrontations (see Figure 4.1, panel A). In Figure 4.1, whenever the estimated difference between Ego's and the Opponent's fighting ability drop below the Evolutionarily Stable Strategy (or ESS) curve, Ego should stop fighting. Panel A shows the effects of variation in the costs of each interaction with the solid line indicating the highest cost scenario and the dot-dashed line indicating the lowest cost condition. Panel B illustrates the effect of

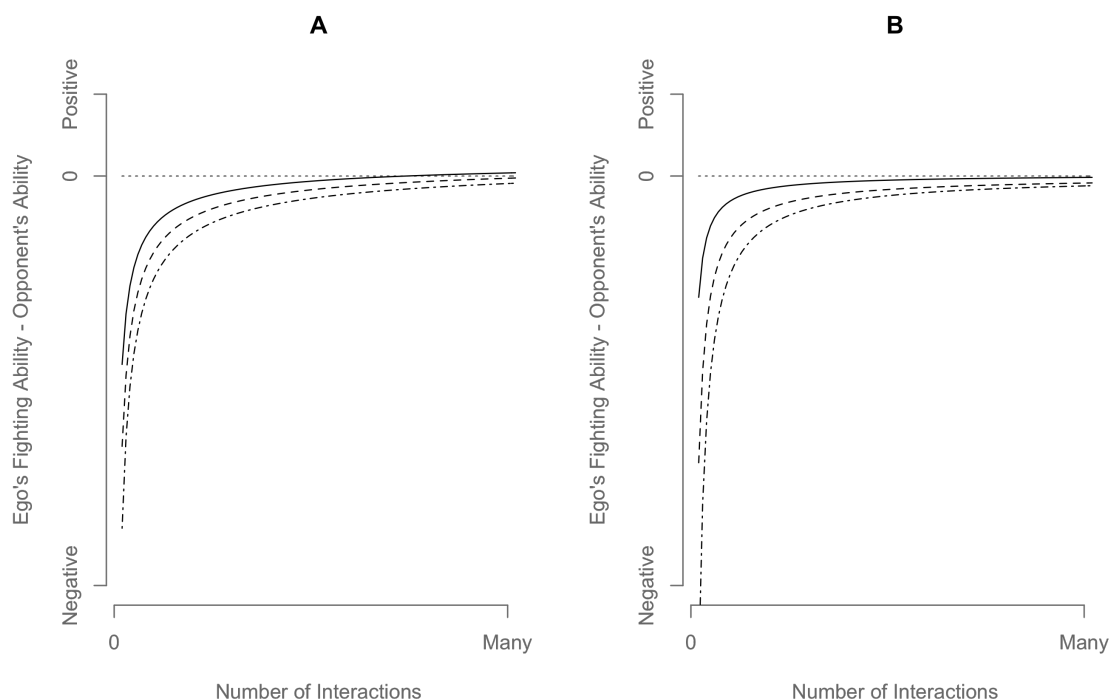


Figure 4.1: Schematic of ESS in aggressive interactions. Panel A illustrates variation in the ESS as a function of changing costs (see text for details). Panel B shows the effect of changes in the accuracy of information on the ESS (see text).

variation in the accuracy of information, with the solid line depicting the ESS with more accurate information and the dot-dashed line showing the ESS with less accurate information.

Although the details of assessment vary between species, assessment behaviors typically involve displays directly related to an individual's fighting ability such as contests of strength or audible demonstrations of body size (Davies et al. 2011). Hominids rely on well-developed assessment signals including aural and visual displays. Unlike gorillas and orangutans (cf., Watts 1997:45), however, individual fighting ability is only one component of success in dominance interactions among our relatives in genus *Pan*; allies and coalition partners can have decisive effects (Riss and Goodall 1977;

Nishida 1983; Uehara et al. 1994; Nishida and Hosaka 1996; de Waal 2007; Foster et al. 2009; Surbeck et al. 2011).

Similarly, violent confrontations within small-scale human societies rarely take place between only two combatants. Kin and allies quickly involve themselves in disputes (see examples in Meggitt 1965; Chagnon 2012) and a fight's outcome often depends upon which man has the more formidable social network. Assessing one's chances in these kinds of encounters involves gaining an accurate picture of an opponent's social value and ties. Behaviors such as big game hunting, ritual practice, and oratory facilitate these assessments. They demonstrate other men's utility as allies and their potential influence among group members. They may also provide evidence of important underlying phenotypic traits that could affect the outcome of physical contests (von Rueden et al. 2008; von Rueden et al. 2011). Men who excel in such domains set themselves apart as desirable allies and, in many cases, members of large and formidable social networks (von Rueden et al. 2008) – men, in other words, who would make dangerous opponents.

By expanding the range of venues for competition and thereby expanding the opportunities for assessment, shared intentionality diminishes the need for violent physical contests between males. Instead of aggressive displays, men can gain relevant information by observing their peers' performance in such domains as hunting, exchange, and oratory. Though not strictly “aggressive interactions” as defined by Enquist and Leimar (1983), these behaviors provide information about men's social capital, which is often the primary determinant of success in disputes (e.g., von Rueden et al. 2008). In addition to entailing lower costs than aggressive displays, nonviolent venues for male-

male competition provide more accurate information. In their model of assessment, Enquist and Leimar (1983) found that the accuracy of information affected the ESS (see Figure 4.1, panel B). Less accurate information led to more costly and longer-lasting fights (Enquist and Leimar 1983). Since success in confrontations often depends on the number of dependable allies rather than individual size, strength, or (fighting) skill, ape-like dominance displays provide relatively little useful information to a human audience. More relevant information gleaned from men's deference-eliciting behavior means fewer and less intense physical clashes (Enquist and Leimar 1983; Keeley and Grant 1993).

4.6 Conclusion

The parallels between deference in human and NHP groups are striking, but human males rely on a wider range of venues for eliciting deference, show remarkable adaptability in taking on new opportunities, and rely far less on within-group violence to gain deference than their NHP counterparts. Though chimpanzees show evidence of non-agonistic means of eliciting deference (i.e., patrolling and hunting), their options are narrow when compared with humans and they show little ability to make use of new opportunities (de Waal 2007). We link the human pattern to an evolutionary shift from independent mothering to cooperative rearing. New patterns of reproductive timing consequent to this shift led to novel selective pressures and the emergence of shared intentionality, which allowed ancestral males to pursue a wider range of deference-eliciting behaviors.

According to the Grandmother Hypothesis, greater longevity is another key aspect of this life history shift (Hawkes et al. 1998; Hawkes 2003; Kim et al. 2012) – one with

marked consequences for males. Much longer adult life spans in humans compared to the other great apes (Robson et al. 2006) not only mean slower aging, they confront men with an array of potential competitors and allies of a much wider range of ages. Chimpanzee and gorilla males that reach dominant status do so around the age of 20 and dominants rarely retain that standing as long as 10 years (Kim et al. 2012); very few males survive to the age of 40 (Hill et al. 2001). Among the Bardi, by contrast, men in their twenties are just beginning to earn their reputations and still depend heavily on elder allies for social support and access to ritual knowledge. A later end to female fertility did not accompany increased longevity in our lineage, which means that there are fewer fertile females per male in human groups. The implications of this age structure for paternity competition among men are enormous. We leave more detailed investigations of this life history shift's effects on male strategies for future work.

We explain diminished reliance on within-group violence in many human societies as a consequence of shared intentionality. This reduction in violence is of a very specific type, however – that of physical aggression between adult males. Shared intentionality also alters the character of relationships among women, among children, and between the sexes. Ethnographic evidence suggests that rates of domestic violence can be quite high among humans (e.g., Meggitt 1965; Wrangham and Peterson 1996; Chagnon 2012), though not as high as rates observed among nonhuman great apes (Hohmann and Fruth 2003; Wrangham et al. 2006). Appetites for joint attention present new opportunities for both competition and alliance building that likely affect both the costs and benefits of this deeply rooted form of aggression (Smuts 1992). Furthermore, shared intentionality and its amplification of audience attention may encourage reliance

on warfare, raiding, and other kinds of intergroup violence as means of eliciting deference.

In addition to providing a framework for explaining contemporary patterns of human behavior, these links carry implications for human prehistory. Flexibility in adapting to new competitive environments is a distinctly human ability and ethnographic examples abound (e.g., Cronk 2004; von Rueden et al. 2008). The propensity for utilizing novel opportunities is likely not a recent development, but one that emerged soon after shared intentionality and its relaxation of constraints on signaling behaviors. We expect, therefore, that ancestral members of our lineage used many behaviors to elicit deference. Big game hunting and/or aggressive scavenging likely constituted one such behavior (McGuire and Hildebrandt 2005; O'Connell 2006). Likewise, the diverse, highly refined artifacts that some have used to argue for a human revolution around 50 thousand years ago may have emerged as a form of communication (Kuhn and Stiner 2006), but they also could reflect male strategies (Bird and O'Connell 2006). Archaeological investigations of human-like patterns of deference face two substantial obstacles. First, many behaviors that contemporary men use to elicit deference leave behind little or no material signature – oratory, for example, leaves few artifactual remains. Second, those behaviors that do leave robust archaeological signals – big game hunting, for example – provide material benefits that may overshadow appreciation of their utility as pathways to prominence (Broughton and Bayham 2003; Copping and Jones 2007).

CHAPTER 5

CONCLUSION

As an evolutionary anthropologist, my primary aims in investigating men's status seeking behavior are to uncover both what is unique about humans and the processes by which these unique traits evolved. The Bardi present a number of insights pertaining to the first of these topics. Men have far more options for status seeking than our closest living relatives. Though chimpanzee males might gain social benefits from patrolling, raids, and hunting Colobus monkeys (Mitani 2009a), in addition to more widely shared behaviors like grooming and displays, this range of options, which appears to be the broadest among nonhuman great apes, pales in comparison to what Bardi men do to elicit deference. Furthermore, men show a striking ability to adjust to new opportunities for status and large-scale changes to extant ones. The Bardi adoption of wage labor and novel hunting technologies exemplify these patterns. Finally, prominent men are less likely to engage in physical confrontations over status than their nonhuman primate counterparts (Hohmann and Fruth 2003; Wrangham et al. 2006).

This last point warrants closer examination. On one hand, it would be difficult to argue that rates of aggression between males in human societies approach rates among chimps, gorillas, or even bonobos. At one study site, bonobo males, often characterized as pacific in comparison to chimpanzees (de Waal 1995; Wrangham and Peterson 1996;

Doran et al. 2002; Furuichi 2011; Hare et al. 2012), engaged in aggressive interactions with other males at a rate of 0.14 incidents per hour (Hohmann and Fruth 2003). Put another way, males at Lomako directed physical aggression such as biting, slapping, or hitting against other males about once every 7 hours. Such a rate of aggression would most likely be very high for men. Yet the human data, especially those pertaining to forager societies, are quite poor. Wrangham and collaborators (2006) relied on a single study from northern Australia in calculating rates of within-group violence for hunter-gatherers. If we are to have a good grasp of the ways in which men's competitive behaviors differ from those of our nonhuman relatives, we need a better sense of men's use of violence and aggression. This is a tall order anywhere, but especially so in places such as Australia where violent behavior is an integral part of men's ritual life (see, for example, Strehlow 1970; Tonkinson 1991; Elkin 1994) and the government has disrupted traditional procedures for dispute settlement including dueling and ritual punishment.

Our understanding of human status competition is also constrained by a lack of testable hypotheses regarding its evolution. Unfortunately, the Bardi reveal less about the evolutionary processes leading to uniquely human aspects of status than they do about the attributes themselves. Hawkes, Keefe, and I have nevertheless proposed a hypothesis that may shed some light on the issue. Shared intentionality is a powerful cognitive tool with consequences for many aspects of social life in human societies (Tomasello et al. 2005; Hare 2011). The informal model outlined in Chapter 4 places shared intentions at the center of humankind's evolutionary story. This is only a starting point, however, and generating testable predictions about shared intentionality's effects on human status competition will require mathematical elaboration.

In addition to highlighting the need for quantitative data on men's use of violence and a formal model of shared intentionality's effects, this investigation of status among the Bardi points to a few other avenues for future research. One relates to the finding that high status Bardi men use a wide range of competitive venues. This result suggests that prominent men face different tradeoffs than peers who specialize in one or two status-linked activities. Other authors have suggested (von Rueden et al. 2008; von Rueden et al. 2011) that high status men may succeed in a wider range of venues because of underlying phenotypic attributes. I find this assessment compelling and look forward to investigating what might lead to variance in those aspects of phenotype linked to status competition.

One aspect of the human phenotype that carries important implications for male-male competition is our relatively long life span. In contrast to the other great apes, men often live well into their seventies – even in high mortality situations (Blurton Jones et al. 1992; Hill and Hurtado 1996; Kaplan et al. 2000; Howell 2010). This forces men to cope with competitors from a much wider range of ages. That the evolution of longevity did not include longer fertile periods in human females (Williams 1957; Hamilton 1966; Hawkes et al. 1998; O'Connell et al. 1999) only compounds the issue. Women's long postfertile life spans mean that there are more males competing for each fertile female in human societies than in group-living nonhuman great apes. Insofar as operational sex ratio shapes mating tactics and same-sex competition (Emlen and Oring 1977; Kvarnemo and Ahnesjö 1996; Kokko and Johnstone 2002; Clutton-Brock 2007; Weir et al. 2011), the evolution of greater longevity in our lineage has likely had profound effects on the

ways that men compete with one another for access to women. Formal modeling of these effects may provide key insights.

As with so many scientific pursuits, it seems that the more we learn about status competition between men, the less we know. The Bardi case and others around the world show that men have unique ways of contesting status when compared to nonhuman great apes. These derived features include our reliance on diverse competitive behaviors, our flexibility in making use of novel activities, and our reduced reliance on within-group violence between males. Yet the evidence supporting these conclusions is rather thin in some areas and better data could lead to revision. Moreover, we know very little about when and why these unique attributes evolved. The pattern of prominent Bardi men successfully exploiting many different behaviors leads to questions about what aspects of phenotype allow them to be so good at so many things. Perhaps, on some level, a research project's value depends not only on the data it generates and the evidence it provides, but the questions that it provokes. If so, my time among the Bardi has proven invaluable.

APPENDIX

HIERARCHICAL MODEL OF EXCELLENCE SCORES

A.1 Model and results

Though logistic regression models produce suggestive results, an explicitly hierarchical approach likely constitutes a more accurate model of the correlations between domains of status seeking. Modeling the structure that produces these correlations allowed me to estimate the multivariate distribution of success across venues, as well as the uncertainty in this distribution. Specifically, I modeled observed nominations as a function of normally distributed latent variables, which I refer to as “excellence” scores, via the following model:

$$y_{ij} \sim \text{Binom}(p_{ij}, 88) \quad (\text{Eq. A.1})$$

$$\log\left(\frac{p_{ij}}{1-p_{ij}}\right) = a_{ij} \quad (\text{Eq. A.2})$$

$$\mathbf{a}_i \sim N_5(\mathbf{a}, \Sigma) \quad (\text{Eq. A.3})$$

where i and j index individuals and venues, respectively, and y_{ij} refers to nominations for individual i in venue j .

Binomially distributed nominations (Eq. A.1; $n = 88$ since this is the maximum number of nominations an individual could receive) are predicted by the log-odds a_{ij} for individual i in venue j (Eq. A.2). These log-odds depend, in turn, on vectors of continuous values \mathbf{a}_i drawn for each individual from a five-dimensional normal distribution with a vector of mean values \mathbf{a} and variance-covariance matrix Σ (Eq. A.3). I used noninformative priors for all parameters and specified the variance-covariance matrix using the common inverse-Wishart specification with prior assumption that all venues are uncorrelated (Gelman and Hill 2007). Following 10,000 burn-in samples, I sampled the posterior 100,000 times using JAGS 3.1.0 (Plummer 2011) and recorded mean rho correlations, as well as their 95% credible intervals, between different domains of excellence based on the variance-covariance matrix (Σ) defined in Equation A.3 (see Table A.1). I then resampled the posterior 50,000 times, plotted mean excellence scores for every individual, and added color-coded trend lines (Figure A.1).

This hierarchical model of excellence scores produced very similar results to those generated by logistic regression, with a few important differences. Like beta-binomial models fitted to observed counts, estimated excellence scores produced positive correlations between all five competitive domains. The most striking difference between these analytical approaches is that the hierarchical model yielded relatively wide credible intervals for a larger fraction of correlations. Whereas only four confidence intervals included values corresponding to both negative and positive correlations (see Table 3.2), eight credible intervals included positive and negative numbers (Table A.1). This

Table A.1: Mean rho (correlation coefficient) for JAGS model of "excellence scores." Values in parentheses indicate 95% credible intervals. Domains of excellence approximate the five venues of status competition (Culture, Hunting, etc.) discussed in the text. In order to highlight the latent nature of excellence in this model and point out its divergence from observed nominations, I have elected not to assign these domains the same names as competitive venues.

	1	2	3	4	5
1	1 (0, 0)	0.42 (0.13, 0.67)	0.30 (-0.02, 0.58)	0.58 (0.30, 0.78)	0.69 (0.46, 0.85)
2	0.42 (0.13, 0.67)	1 (0, 0)	0.17 (-0.14, 0.47)	0.31 (0.00, 0.58)	0.30 (-0.01, 0.57)
3	0.30 (-0.02, 0.58)	0.17 (-0.14, 0.47)	1 (0, 0)	0.86 (0.72, 0.94)	0.76 (0.57, 0.89)
4	0.58 (0.30, 0.78)	0.31 (0.00, 0.58)	0.86 (0.72, 0.94)	1 (0, 0)	0.91 (0.80, 0.97)
5	0.69 (0.46, 0.85)	0.30 (-0.01, 0.57)	0.76 (0.57, 0.89)	0.91 (0.80, 0.97)	1 (0, 0)

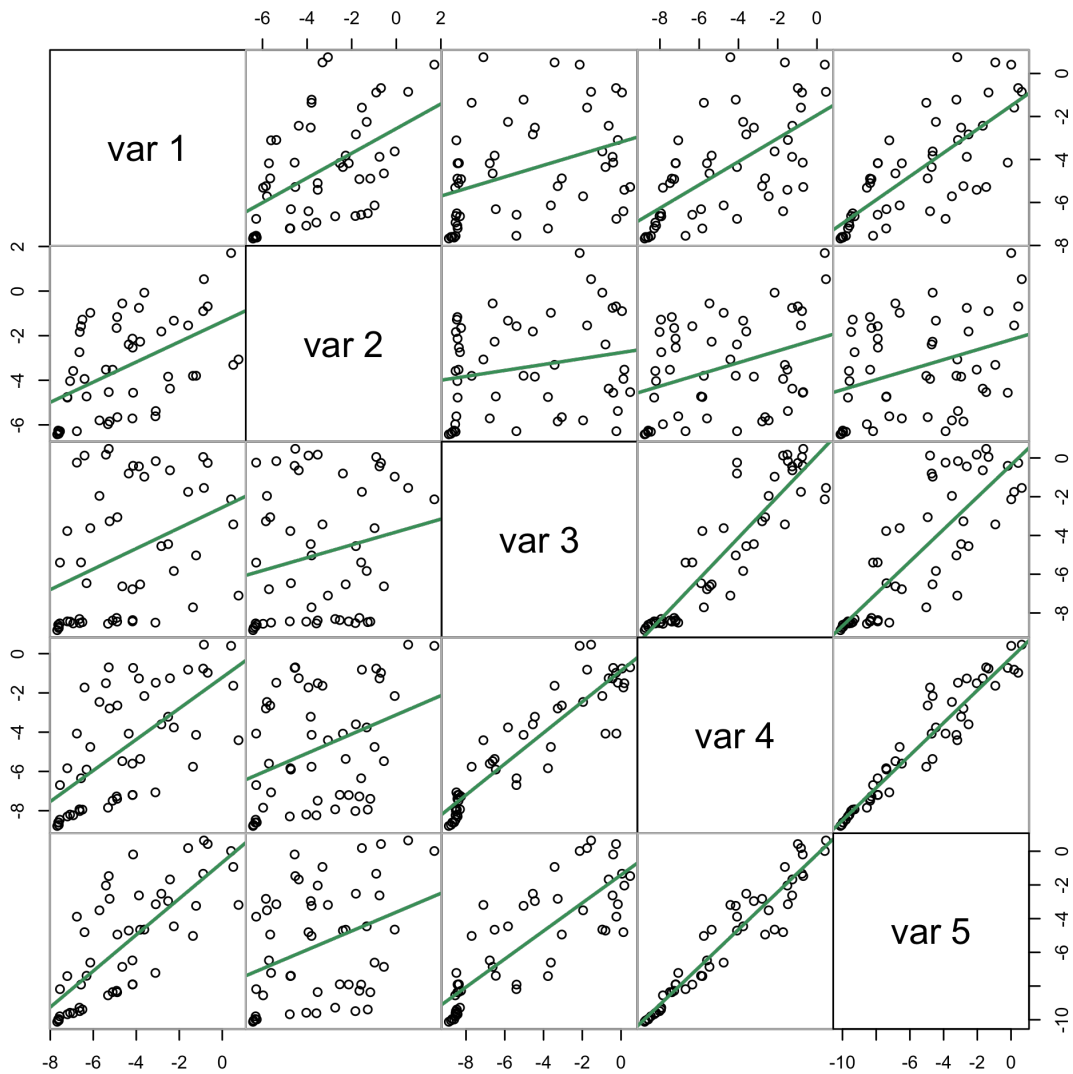


Figure A.1: Excellence scores across five domains. These scores were generated using the hierarchical model described in the text. As in Table A.1, I have elected not to assign the domains the same names as competitive venues (e.g., Culture, Hunting, Money) since they do not correspond exactly.

suggests that there may be more underlying uncertainty in excellence than is reflected in beta-binomial models of observed nominations. This point becomes even more apparent when comparing the simulated data shown in Figure A.1 to the observed data in Figure 3.3. As shown in Table A.1, however, excellence scores correlate positively with one another across all five venues of competition. Furthermore, the simulated data shown in Figure A.1 present a picture very much like the one revealed by observed data (Figure 3.3).

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