

COMPETING TO BE LEADERLESS: FOOD SHARING AND MAGNANIMITY AMONG MARTU ABORIGINES

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SUMMARY

This chapter explores pathways of leadership that can emerge through one's ability to 'disengage' with property. We describe arenas of leadership among Martu Aborigines in Australia's Western Desert, especially in the juxtaposition of egalitarian material and social relations in mundane life relative to the hierarchical nature of ritual life. The relationship between these is especially salient in contemporary Martu foraging activities and food sharing practices, in which a hunter's prestige (both men's and women's) is based on reputations of magnanimity and equity. Our analysis shows that Martu do not share food to maintain balances in resource production, but rather equity in consumption: food flows from those that consistently produce more to those that produce less. We suggest that this pattern can be maintained when a hunter has strong incentives to work for a collective good—here, the incentive is argued to be one's political reputation, which ultimately provides benefits in the form of wider social cooperative networks. If so, this hypothesis may account for the diffuse leadership and lack of concern for material possessions in daily life, and the hierarchical distinctions that hunting can support in ritual life.

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INTRODUCTION

Conventional explanations of hereditary inequality and institutionalized forms of leadership have long focused on the nature of material production, especially agriculture, as the prime catalyst for their development (e.g. Childe 1946). The model is a familiar one: enduring socio-economic and political leadership evolves under conditions of sedentism and privileged control of key resources and agricultural surplus. This notion was overturned in part when Fried (1967) demonstrated that hunter-gatherer societies exhibit significant variability in social differentiation, and a large body of literature now suggests that institutionalized leadership and centralized political formations were features of a number of hunter-gatherer societies, especially those of the Northwest Coast of North America (see Ames 1981; Arnold 1993, 1996a, 1996b, 2000; Fitzhugh 2003; Hayden 1995, 2001; Keeley 1988; Keen 2006; Kelly 1995; Price and Feinman 1995; Sassaman 2004 for review).

Nevertheless, as Keeley (1988) shows, these “complex” hunter-gatherers have (or had) much in common with many agricultural societies: they are marked by some reliance on defendable and stored resources, relatively low residential mobility, large settlements and dense populations, high levels of interpersonal competition and intergroup conflict, and the use of wealth, luxury goods and money-like currencies. Arnold (1996b, 2000, this volume) argues convincingly that many of these features are coupled with the ability of some individuals to maintain inherited distinctions and enduring institutions that manage non-kin labor across multiple arenas of production and administer access to valued forms of property. Other contributors to this volume (especially Eerkens, Stanish, and Vaughn) also draw our attention to the way that institutionalized leadership co-evolves with privatization and novel opportunities for suprafamilial control over the production, distribution, and use rights of prestige goods and knowledge. Political power coalesces around leaders that can accumulate extra-household surplus, mobilize the labor to generate it, and direct its distribution. Where it is impossible to intensify production and renew the control of non-kin labor (such as when resources are unpredictable and asynchronously acquired and their distribution is bound by kinship obligation), leadership is more situational and transitory, and social relationships are more egalitarian.

Egalitarianism and Food Sharing

A nexus of food sharing and egalitarianism is at the core of many influential scenarios of the evolution of human social arrangements (see Stanford and Bunn 2001 for background; Hill 1982, Isaac 1978, Kaplan et al. 2000, Lovejoy 1981, Washburn and DeVore 1961, Washburn and Lancaster 1968). Mobile hunter-gatherers are often characterized as having situational leadership and shallow hierarchies, and many scholars have suggested that their lack of enduring institutional authority is a product of a distinctly human reliance on cooperation, leveling, sanctioning and reciprocal sharing in small groups living in

unpredictable environments (e.g. Boehm 1993, 2001; Fried 1967; Knauff 1991; Tooby and Cosmides 1992). When groups are small and individuals have a high probability of continued interaction, variance in the supply of resources can be reduced via a cooperative system of reciprocal sharing (Trivers 1971). This is especially the case with a heavy reliance on high-variance, difficult to store, but nutrient dense resources like large game: reciprocal obligations ensure that a hunter and his family will be fed when his efforts fail (Kaplan and Hill 1985). Sharing, however, makes work a public good, such that if one person works more it provides others the opportunity to free-ride off their production (Hawkes 1992). This reduces the payoffs from investing in labor for defendable surplus, and is thought to account for the cavalier attitude that many “immediate-return” mobile foragers have toward accumulating property and storage (Sahlins 1972, Woodburn 1982). Under such conditions, enduring leadership is undercut by the effect that sharing has on evening out resource distribution, and no individual or group can, with any permanency, capitalize on opportunities to control non-kin labor and their production.

According to this view, food sharing serves to increase the reliability of key resources: risk is pooled and the arrangement is maintained by individuals directing shares toward those who they can count on to share in return. This is analogous to what Sahlins (1972:191-196) calls balanced reciprocity. When key resources are storable and predictable, and societies large and settled, the payoffs from risk reduction sharing decrease. Under such conditions, supply variance is better reduced by storing and defending surplus. And the ability to defend predictable resources, including the labor of others, almost by definition, creates conditions favorable for intensifying production and the emergence of enduring leadership – favorable from the perspective of both the public (in terms the public goods leaders might be able to provide, e.g. defense) and those who seek leadership to enhance their own prestige and political capital (see Vaughn this volume).

The Australian Paradox

Aboriginal Australia has long presented special difficulties for categorizing conditions that might maintain relationships that are mostly egalitarian vs. those characterized by interpersonal domination and hierarchical leadership. While highly centralized and permanent offices of inherited political and economic leadership were probably rare or absent in classical Aboriginal societies, ethnographers and archaeologists have described a broad continuum of politically and religiously constituted leadership and control of labor and production (see Ross 2006 for recent references). Many Aboriginal societies exhibit aspects of asymmetrical structuring, with positions of authority for ritual purposes, some management of others' labor through brideservice and ceremonial commitments, restricted access to esoteric knowledge and totemic estates, along with formal jural rules and punitive procedures associated with their administration (e.g. Meggitt 1962, Myers 1988, Peterson 1969, Strehlow

1970, Tonkinson 1988b). These are maintained despite low population densities, high residential mobility, a lack of food storage, and little in the way of material wealth differentials (see Hiatt 1996: 78-99).

Keen (2004, 2006) has argued that throughout Australia the lack of storable and defendable resources limited population pressures and constrained the contexts of institutionalized leadership. Keen's analysis suggests that social asymmetries are correlated with increased polygyny brought on by increases in resource density and predictability, which create denser human populations and conditions for intensifying production. These correlations, however, are not strong. Even in the arid center, where resources are especially unpredictable and material wealth differentials absent, contextualized gerontocracies, exhibiting substantial differences in access to ritual and reproductive power, are common (e.g. Bern 1979, Peterson 1969, Strehlow 1970).

In this chapter we will explore an alternative means by which leadership emerges and is maintained. We do so in an attempt to build a set of interlinked hypotheses to account for both the egalitarian and hierarchical nature of Aboriginal society as a product of the same socio-ecological process. Our basic argument is that in many circumstances in Aboriginal Australia, authority in mundane contexts is expressed in ways that enforce egalitarianism: influence, renown and power are often sustained by generously providing equal access to valued material resources (Myers 1986: 265).

We begin with some general comments about leadership and subsistence strategies among contemporary Martu hunters of Australia's Western Desert. We then present an analysis of Martu hunting and meat sharing patterns, comparing the distribution of different kinds of resources characterized by predictable differences in acquisition variance. The analysis is designed to investigate the proposition that Martu food sharing is designed to ensure against the risky nature of hunting in an unpredictable environment, which would in turn constrain the development of defendable wealth and enduring inequalities. We then discuss "egalitarian" sharing in light of recent developments in signaling theory from behavioral ecology, suggesting that certain aspects of Martu production and sharing are a product of competitive display and the ability of individuals to bear the costs of generosity.

THE MARTU

Martu (aka Mardu, Mardujarra) is a contemporary term used to identify a community of about 800 Aborigines whose homelands comprise about 150,000² km of the north west section of Australia's Western Desert. The term is now commonly used as self-reference by people from eight dialect-named groups with estates in the deserts surrounding the Percival Lakes, the Rudall River, and Lake Disappointment. The literature with respect to Martu social organization and history is quite large. Tonkinson (1974, 1978, 1988a, 1988b, 1990, 1991,

2000, 2007a, 2007b) provides extensive details on Martu identity, religion, gender, politics, autonomy and change. Veth and Walsh have analyzed aspects of Martu prehistory, subsistence and mobility (Veth 1987, 1989, 1995, 2000; Veth and Walsh 1988; Walsh 1990). And recently Davenport et al. (2005) have described the international events and social implications surrounding the interaction between Australian society and remote Martu bands. Here we will restrict our description and analysis to the nature of the relationships between social organization and subsistence strategies among the Martu based out of three remote communities in the heart of the Western Desert: Parnngurr, Punmu and Kunawarritji.

Interaction between Martu and Europeans remained very limited until after 1930, somewhat later than around the mining settlements in the Goldfields to the south. Particularly in the period between 1940 and 1967, Martu (initially those from Kartujarra, Putijarra, Kurajarra and Pijakarli dialect-named groups) began a process of increasing involvement with the European frontier. In a slow migration from their home country, many Martu gravitated west and north, with permanent encampments eventually growing around European outposts at Jigalong, Nullagine, Marble Bar, and Balgo. Between 1955 and 1967 there were a minimum of 152 Martu (mostly Manyjilyjarra and Warnman) living in ten flexible composite bands who remained completely autonomous of Western influence, ranging throughout the McKay Range-Rudall River and Percival Lakes-northern Canning Stock Route regions (Peterson and Long 1986:116-121, Scelza and Bliege Bird, in preparation). As Davenport and colleagues (2005) detail, some of these bands were cleared from their homelands in preparation for joint British-Australian missile tests, while others remained until 1966-1967 when they were brought in by government patrols or walked in to rejoin their families at Jigalong. Members of these bands never planned to settle there permanently, and in the mid 1980s they reestablished occupation of the desert at Parnngurr, Punmu and Kunawarritji. While in some respects their lives have changed dramatically, these Martu retain a distinct hunter-gatherer orientation with strong commitments to the continuity of their foraging way of life, sustaining their Law, their ritual arts, their extensive kin obligations and the expression of these on the desert landscape. The maintenance of these commitments provided the foundation for the 2002 native title settlement which formally recognized Martu as the customary owners of 136,000² km of their country.

Leadership, Hierarchy, and Egalitarian Relationships

Western Desert Aborigines are commonly characterized as having broadly symmetrical interpersonal material and social relationships in daily life (e.g. Myers 1986, Tonkinson 1988b). This is most certainly the case for Martu that we live with: they live up to their common refrain that “we are all bosses”. There are no secular positions of leadership that provide authority for individuals to regularly renew or reinforce their control over the mundane labor of others. This includes children, who are continually encouraged to assert their individual

autonomy in daily decision-making. As Myers (1986: 252-255) and Martu describe it, authority lies in “holding” (*kanyinyja*) or nurturing the autonomy of others. There is shame (*kurnta*) in forceful command and overt assertiveness. In practical terms this means anticipating asymmetries and giving to each individual on demand, rather than *withholding* resources for the common good or future use (Folds 2001: 48-60).

This seems to be in stark contrast to much of the religiously constituted leadership among Martu, which *requires* withholding access to valued resources. While there is no council of elders or “rulers” as such, under the rubric of “The Law” (*Yulupirti*), Martu identify a number of inter-related arenas of steep hierarchy and strict deference, with a clear gerontocratic bias (Tonkinson 1988b). These include initiations and the festivities that surround them, funerals with their ritually laden feasts and increasingly lavish distributions of material goods, formal jural rules and their administration, and in the past, revenge expeditions. Today, the rights to *hold* the Law are acquired in a young man’s adherence to years of rigorous ritual training and physical initiation. The *Jukurrpa* (Dreamtime) rituals and their associated paraphernalia are withheld from the public by elders with tremendous authority, and access to them obligates one to protect and uphold their power. Failing to uphold the Law (e.g. homicide, unauthorized possession of sacred knowledge or objects, sorcery, incest) requires adjudication and formal punitive procedures: spearing a transgressor’s thigh or aiming a sharp boomerang at a shoulder. Likewise, contemporary mortuary activities, especially those surrounding “reburial” (*jaminpa*) ceremonies, involve withholding valued resources for months or years at a time. The activities surrounding funeral procedures intensify production and control labor directed at accumulating tremendous stores of resources (especially blankets and purchased food) given out following ritualized acquisition and distribution of red kangaroo (*marlu*). Below we argue that such control over labor and resources is actually sustained by the egalitarian nature of mundane subsistence and sharing, embodied in values displayed by renowned and magnanimous hunters referred to as *miltilya*.

Data Collection

We began working with Martu while they were compiling their Native Title claim in 2000. Since then we have spent 24 months across all seasons living in the communities. Data reported here were collected during daily foraging trips out from either the community or from temporary residential camps. *Foraging* is defined as the total time spent searching for, pursuing, capturing, and processing wild food resources. During foraging trips we recorded the identity of each participant in the *foraging party* (the group that leaves together), time they spent traveling to the foraging locales, route taken, foraging location, and foraging bouts of all participants. *Foraging bouts* include the time each participant spent foraging (not including travel) and counts and weights of different resources acquired. When possible, after foraging bouts we recorded *distribution sequences* of all resources. This included the identity of acquirers, distributors

and recipients, and the amount of resources involved in *primary transfers* from the acquirer to distributor and *secondary transfers* of portions from distributor to potential consumers.

We use Martu definitions of different *foraging activities*, which correspond to activity types which are usually mutually exclusive and associated with acquiring a particular suite of resources. Martu designate a given foraging activity by the term for its primary resource type and a directional suffix (e.g. *parnaparnti* [sand goanna] –*karti* [to], see Table 1). They also often group foraging activities by those defined by meat/hunting (*kuwiyil/wartilpa*) and those focused on plant-insect/collecting (*mirrka/nganyimpa*): hunting includes those activities with active pursuit of mobile prey, collecting focuses on immobile resources. We also use the emic definitions for *resource types*, which in most cases correspond to a given species. Engaging in a particular foraging activity means that, due to habitat, seasonal, or technological constraints, a forager trades off opportunities to search for another suite of resource types; and pursuing items of particular type (either after direct visual encounter or an indirect encounter with sign of the resource) means that a forager trades off the opportunity to continue searching for items of other types of resources.

During each trip, at least one researcher present asked permission to conduct a focal individual *foraging follow* for the duration of the bout, during which we recorded a forager's time allocation to search, pursuit, capture, field processing and transport, as well as weights and counts of each type of resource acquired, and on many follows the foraging path was recorded using GPS. If foragers cooperated during a bout, an observer with some experience could sometimes conduct more than one focal follow at a time.

For game animals, in order to convert whole weight to edible weight acquired and shared, we measured the proportion of refuse to whole weight in a sample 46 specimens of all types of small game and four bustards (*Ardeotis australis*). Proportional meat and marrow weights for each shared parcel of male or female euro (hill kangaroo, *Macropus robustus*) were obtained from O'Connell and Marshall (1989: tables 3&4). Edible weights of all resources according to species and body part were then converted to kilocalories using Brand-Miller et al. (1993).

These records comprise three datasets used in the description and analysis below: 1196 adult foraging bouts, 812 focal forager follows, and 251 primary distribution sequences following foraging bouts (155 sequences for two of the most important resource types are used here).

CONTEMPORARY PATTERNS OF FORAGING AND SHARING

Previously we have written about Martu subsistence strategies in relation to mosaic burning, seasonality, gender and age (Bird and Bliege Bird 2005, 2004;

Bird et al. 2004, 2005; Bliege Bird and Bird 2005). Below we focus on describing routine patterns of adult foraging and food sharing among Martu from the Outstation communities.

While the nutritional importance of foraging has been eclipsed to some extent by purchased foods, the social value of bush tucker has not (see also Povinelli 1992). Martu often say that amid the tensions at Jigalong, they returned to their homelands in order to care for the Law, protect their estates, and maintain their hunting and gathering priorities. Today foraging is the dominant daily activity in the communities. At least one party of men, women and children hunt or collect wild plants every day, providing about 25% of the daily calories per capita, and about 80% of the meat calories (Scelza, unpublished data).

Martu routinely hunt a wide array of prey, with a focus on goanna lizards (*Varanus gouldii*, *V. gigantius*, *V. panoptes*, and *V. acanthurus*), bustards (*Ardeotis australis*), feral cats, skink (*Tiliqua scincoides*), snakes (especially *Aspidites* sp.) and euro (hill kangaroo, *Macropus robustus*). Collecting insects and their products is also important, especially cossid moth larvae (*Endoxyla* spp.) which are extracted from acacia roots and eucalyptus trees, and recently, honey from feral European bees that have migrated into the area. During the period when Martu returned to establish the Outstations, Walsh (1990) recorded 106 species of plant foods, the most important being acacia tree seeds, grass seeds (especially *Eragrostis eriopoda*), bush tomatoes (*Solanum* spp.), nectar from *Hakea* spp. and *Grevillea eriostachya* flowers, and roots and bulbs (especially *Vigna lanceolata* and *Cyperus bulbosus*). Martu reliance on seeds has declined, but they continue to harvest large amounts of *Solanum* fruit, *Hakea* nectar, and roots and bulbs when in season (see Table 1).

Foraging Activities

Typically a foraging party leaves from the settlement or a temporary residential camp in late morning following household or community business. Vehicles are regularly used to access the general foraging locale, but on arrival much of the foraging is conducted on foot. Martu generally operate within a radius of about 30-40 km from the settlement or 10 km from a temporary camp. Foraging parties average 8.0 ± 3.3^1 participants (2.3 ± 1.1 men, 3.6 ± 0.8 women, 2.1 ± 1.4 children).

A given foraging location is decided by consensus among the adults in the party, often involving much discussion about intricate ecological and social factors likely to impinge on the success of different foragers. Martu clearly recognize differences in foraging prowess, with the most skilled and generous men and women revered as *miltilya*. However, in the context of foraging, it is very rare to see other adults defer to *miltilya* (visitors and youngsters excepted), or attempts by senior Lawmen to impose their will on others. The style, especially among

¹ All errors are given as Standard Deviation.

respected men and women, is one of modest suggestion, good humor and consideration of all adult participants. Not that open disagreements never occur, but any participant who cares is free to offer their opinion, which is generally taken seriously by all. This is remarkable given that men and women (and children!) often have conflicting foraging goals.

Nearly anyone who wishes can participate in a given foraging party, the primary constraints being the number of operating vehicles, and space (on one occasion we recorded 23 people with gear in a Landcruiser, but 15 is not uncommon). Usually only one vehicle is used per foraging party, although sometimes two or more vehicles are taken or rendezvous later. As is the case in all aspects of Martu life, kinship considerations are ever present in the style of interaction among the members of a foraging party, and they are a common basis for redressing issues of participation (“I am your *kurndili* (MZ), why didn’t you pick me up when you went hunting yesterday!?). But neither the degree of genealogical relatedness nor specific kinship ties determine the overall composition of foraging parties. Some people with close ties of marriage, kinship or friendship are often in the same foraging party, and may often cooperate while foraging, while others may never participate together in the same group. But daily composition is highly fluid and almost always consists of members of different households. As we discuss below, this has an important effect on food sharing patterns because primary and secondary distributions occur among members of a foraging party, not among or between households.

Often game animals, especially bustards, are spotted en route to foraging destinations, and active search by all participants in a party begins as soon as they leave camp. Adult men are almost always armed with small caliber rifles; women occasionally carry rifles in a vehicle if men aren’t present, and many of the women are keen shots. Upon arrival in the agreed area, a temporary dinner-time camp is designated and the party splits up, generally in groups of one or two.

Depending on locale, season and expected returns, participants typically engage in one of eleven types of foraging activities (see Table 1). Adult foraging bouts (not including travel time) across all activities average 158 ± 88 minutes ($n=1179$). Men’s and women’s bouts are similar in length ($\bar{x} = 161 \pm 95$, 156 ± 84 minutes respectively), but women forage more frequently: they make up 63% of all adult foraging time and produce 52% of all calories from foraged foods.

The most important foraging activity, both in terms of time and calories across all bouts, is *parnaparnti* (sand goanna) hunting: it makes up 53% of all foraging time and contributes 34% of all calories acquired from foraged resources. *Parnaparnti* hunters operate on foot, often burning large patches of spinifex grass in the sandhills to aid their search and pursuit of a range of small game (Bird et al. 2005). This activity typically incorporates significant amounts of time tracking and extracting prey from their burrows with specialized digging sticks. Women

allocate most of their foraging time to this activity (74%), although it tends to be more important during *wantajarra*, the cool/dry season (Table 1., also see Bliege Bird and Bird 2005).

Men often participate in *parnaparnti* hunting, but much of their foraging is focused in either *kipara* (bustard) hunting or *kirti-kirti* (euro) hunting (Table 1). Together these make up over 60% of men's foraging effort (42% and 19% respectively). Game acquired during these hunts contributes 40% of all calories from foraged foods. *Kipara* hunters usually operate from a vehicle, using it to search large tracts of country and as a mobile blind to approach close enough for a shot once the birds are sighted. Unlike *kipara* hunting, *kirti-kirti* hunting is conducted on foot in low lying rocky ranges. This is typical encounter hunting, often marked by long, stealthy pursuits involving extended tracking, punctuated by fast chase over rugged country.

Food Distribution After Foraging

On over 90% of the trips we recorded, after foraging, participants gathered at the designated dinner-time camp, cooked all the food, butchered and distributed portions, ate their fill, and then returned to the settlement often well after dark. According to many Martu, this practice results from lack of firewood around the settlements and facilitates in quick distributions of meat, reducing potential conflicts surrounding sharing.

We have often heard Martu say they share widely because "we are all one family". In that sense food sharing at dinner-time camps is an expression of relatedness, but its patterns are not determined by rules of kinship (see Altman's description of Gunwinggu sharing, 1987:131-139).

This is not to say that Martu sharing is free of rules or concerns about kinship. Treatment of euro carcasses illustrate the point. A hunter, especially if he is younger, is expected to make no claim to the carcass and usually plays no part in its butchery or division. This is characteristic of a hunter's disengagement of property (Tonkinson 1988b:550): he usually drops his kill at the edge of the dinner-time camp without drawing attention to himself, and an elder male takes responsibility for cooking, butchery and distribution. Processing for primary distribution is usually quite formal and proceeds in a manner similar to that described for other desert Aboriginal groups (e.g. Gould 1967, 1982; O'Connell and Marshall 1989). After removing the stomach, intestines, liver and kidneys through a small cut in the lower abdomen, the cook singes the hair on a large fire next to a prepared roasting pit while the cleaned offal and organs roast quickly on the coals. He then removes the carcass from the fire, scrapes off the hair, and cuts off the lower 2/3 of the tail and sometimes the feet. He then places the carcass and tail in the roasting pit. The tail cooks in about 20 minutes, and while it is nominally "given" to the hunter, it and the organs are consumed at the cooking-butchery site by all adults present. After about an hour, the cook

removes the carcass to a brush palette and begins butchery, usually dividing it into nine parcels: the head and cervical vertebrae, two forequarters (each with ribs, a forelimb, bellysheet, lung, and one side with the heart), thoracic vertebrae, the rump (lumbar and sacral vertebrae), the pelvis split into each innominate, and the two rear limbs. If the euro is small, sometimes the head/cervical vertebrae are left attached to one forequarter and the thoracic vertebrae are left attached to the other forequarter. Likewise, occasionally the innominates are left attached to the hind limbs.

Primary distributions require that the cook-distributor take some control for engaging “property”: they determine who gets what. Along with the tail, the head/cervical vertebrae are often designated as the hunter’s. On distribution, a father-in-law (often classificatory “MB”, *kaka*) or mother-in-law (classificatory “FZ”, *yumari*) to the hunter can claim the rump (the cut with the most meat), an elder brother (*kurta*) or his wife (*nyupa*) can claim a forequarter, and a brother-in-law (*makurta*) or married elder sister (*jurtu*) can claim a rear leg. If these kin are not present, the cook-distributor can give the portion to any other adult at his discretion; but even if they are present, they often wave their right to any special claim, and shares are given based on immediate circumstances as evaluated by the cook-distributor. Each parcel is consumed immediately or taken back to the recipient’s household in the settlement for secondary distributions. These proceed without formality or convention: whoever is present and wants a share, especially children, can eat what they want without deference to kinship asymmetries. Leftovers are rare, but any surplus beyond immediate consumption is generally taken to a neighboring household.

We suspect that this process makes it difficult for people that weren’t present in the foraging party to make a strong case for perceived slights, even if they can make a particular claim based on kinship (i.e. if you are not part of the foraging party, you can’t be assured of a share: the hunter modestly gave up his kill, and the cook-distributor paid kind attention to the immediate needs of all present in the foraging party, and appropriate kin made no special claims for larger shares). The responsibility for perceived unfairness is thus diffused by magnanimous concern, and accusations of greediness (*malya*) usually can be leveled only at the *recipients* of shares.

Sharing of small game and plant resources proceeds in a somewhat different fashion. The distribution of game following *parnaparnti* hunting provides a useful example. When foragers return to a dinner-time camp, they gather around one or two cooking hearths depending on the size of the foraging party. Each hunter cleans her own goannas by hooking and twisting the intestines on a stick through a small incision under a forearm, and then quickly singes the lizards on the fire. The outer layers of skin are rubbed off, and all the goannas from the hunters at each hearth are placed in a shallow roasting pit prepared next to the fire. Even though all goannas at a given hearth are cooked together, each hunter keeps track of her own game, and in about 20 minutes, the goannas are extracted and

the hunters claim those that they acquired. Primary distributions follow. These involve hunters effectively pooling their catch among all members of hearth group at the dinner time camp. Goannas are passed back and forth from hunter to hunter and from those that have more to those that have less. If there is more than one hearth group at the dinner-time camp, and significant asymmetries between hearths are obvious, sometimes participants demand “fairness” with secondary transfers between hearths. After these distributions, everyone eats their fill, and leftover portions are taken back to the recipients’ households for further sharing to anyone present. No kinship rules guide these tiers of distribution, and as we show below, because longer *parnaparnti* hunting increases success, the evenness of sharing means that *miltilya* (the renowned hunters), through their magnanimity, support those that work less.

ANALYSIS

Do Martu share with the goal of insuring against future production uncertainties? Does this means of coping with foraging risk erase social hierarchies? Here we evaluate these questions relative to some specific predictions of a reciprocity hypothesis from behavioral ecology (e.g. Kaplan and Hill 1985, Cashdan 1985, Winterhalder 1986, Bliege Bird et al. 2001). If Martu food sharing as we described above is designed as risk reduction reciprocity, we would expect that, relative to the acquirer:

1. Resources acquired from foraging activities that are less risky (those with lower variance in return rates or lower failure rates) should be shared less frequently, and more narrowly. This is because under risk reduction reciprocity, foragers share as insurance against uncertainty in acquisition. The best insurance against production uncertainty for low-risk activities is to work longer (Winterhalder 1986).
2. Distributions of resources should be biased toward recipients that have a higher probability of acquiring surplus. Hunters in a given foraging activity that consistently provide more food than others, and do so more efficiently, should either keep more of the distribution or direct shares toward those that are on average less of a security risk (those that are more efficient across all foraging activities).
3. If sharing is designed as reciprocity more broadly defined--that it serves to create and maintain social networks of cooperation and obligation for resources and services beyond food—then, when present, co-residents and affines should be favored in sharing distributions. All things equal, co-residents and affines could most effectively reciprocate with other currencies.

We evaluate these predictions with comparisons of *parnaparnti* and *kirti-kirti* hunting and the distributions of the associated resources at dinner-time camps. These activities are illustrative given that their resources are two of the three most commonly shared, and on every occasion that a hunter chose *kirti-kirti*

hunting, he/she traded off the opportunity to hunt for *parnaparnti*. Doing so is a risky choice, unless the hunter can be assured he/she will be compensated with future shares of *kirti-kirti* or better yet (relative to risk reduction), shares of *parnaparnti*. While *kirti-kirti* hunting provides the possibility of a bonanza harvest and has a higher average return rate than *parnaparnti* hunting, it is associated with significantly higher variance ($n = 76$ and 575 bouts respectively, $CV = 2.9$ vs. 0.81 , equality of variances F test, $F = 38.0$, $p < .001$; see Table 1.). Much of the difference between the two is due to the chances of failure: *kirti-kirti* hunters failed to acquire anything on 75% of the recorded bouts, *parnaparnti* hunters failed on only 9% of the bouts. The variance associated with *parnaparnti* hunting is also more predictable: hunters can monitor changes in efficiency associated with yearly, seasonal and local circumstances through their own and others daily returns. Such variation for *kirti-kirti* is often swamped by the daily stochasticity and difficulties of encountering and capturing euro.

Prediction 1

These differences have an important effect on the relationship between risk management, foraging effort and harvest size. For *parnaparnti* hunting, longer foraging hours result in larger harvests (total kcal acquired regressed by total foraging time, $r = .38$, $p < .001$), whereas for *kirti-kirti* there is no such relationship ($r = .04$, $p = .73$). Relative to prediction 1, hunters can thus manage the risk associated with *parnaparnti* by adjusting their work effort and controlling distribution of their catch. We would expect that the probability of sharing a catch from *parnaparnti* hunting should be less than that from *kirti-kirti* hunting. This is the case in a limited sense. *Kirti-kirti* is shared on 100% of harvests; shares average 2403 kcals ($n=103$), distributed to an average of 9.6 other individuals per carcass ($n=11$ carcasses). *Parnaparnti* is shared on 82.6% of harvests; shares average 648 kcals ($n=52$), distributed to 2.5 other individuals per harvest ($n=19$ harvests). Compared to *kirti-kirti*, a smaller proportion of a recipient's *parnaparnti* take-home share is made up of food acquired by others ($n = 115$ and 125 respectively, $.91 \pm .27$ vs. $58 \pm .41$, $p = .02$). However, because *parnaparnti* harvests are nearly always successful (9% failure rate) women share to these 2.5 others nearly every day they hunt. *Kirti-kirti* harvests are less successful, (75% failure rate) but are shared to more others. The average number of others distributed to per day is the same for both goanna (2.1 others/day) and *kirti-kirti* hunters (2.4/day). *Parnaparnti* hunters thus share as frequently, and to as many potential others as *kirti-kirti* hunters over the long term—but their shares are a third smaller.

Prediction 2

In order to evaluate prediction 2, we estimated the long-term security risk of investing a share in a given recipient as the recipient's mean foraging efficiency (kcal acquired/hr foraging before sharing) over *all* foraging bouts in *all* activities ($n = 1196$). We then ranked all adult foragers for which we have ten or more fully

recorded bouts (n=31 individuals) by their mean overall efficiency as high (foragers 1-10), medium (foragers 11-20) and low (foragers 21-31). Unranked foragers are the biggest security risk: they are those for whom we have less than ten bouts recorded: they either rarely foraged or were visiting from elsewhere.

Figure 1 shows that when they participate in *parnaparnti* hunting, higher ranked foragers produce significantly bigger harvests than those that are lower ranked or unranked (ANOVA $F = 16.0$, $p = .001$). Distributions at dinner-time camps following the *parnaparnti* hunts even out the asymmetries in acquisition: the average take-home share (edible weight hunters ended up with after all distributions were over) did not vary with hunter rank: high ranked hunters received 822 ± 620 gm, middle-ranked 961 ± 766 , and low-ranked hunters 801 ± 543 (ANOVA; $p \leq .500$). While consumption shares for unranked foragers (455 ± 460) are significantly lower than all ranked hunters ($p < .05$ unranked vs high, medium and low ranked foragers), given that lower and unranked foragers work less and produce less when *parnaparnti* hunting, the fact that sharing is fairly even means that lower and unranked hunters consistently free ride on the efforts of higher ranked hunters. Figure 2. demonstrates this: high and medium ranked foragers produce more than they consume, while low and unranked foragers produce less than they consume (ANOVA, $F = 8.3$, $p < .001$). The even outcome of sharing exaggerates asymmetries in production with consistent one-way flows from those that work harder to those that produce less.

In order for hunters to compensate for *kirti-kirti* hunting's increased risks, we would expect that a) *kirti-kirti* hunters should receive a larger share of all resources acquired (including *kirti-kirti* and the more reliable *parnaparnti*), and b) recipients that are a lower security risk (those that are highly efficient foragers over all activities) should be favored in distributions. Neither of these predictions are supported. On the days that *kirti-kirti* are acquired, a hunter's average post-distribution consumption share (edible weight of *kirti-kirti* and all other resources acquired by members of the foraging party) is not significantly greater than the consumption shares of others present in the dinner-time camp (1551 ± 1691 g vs. 1849 ± 1606 g edible weight respectively; $t = -.61$, $p < .500$). Hunter rank does not affect variability in post-distribution consumption shares: High ranked hunters get 2444 ± 2213 gm, middle ranked hunters claim 2001 ± 1519 , and low-ranked 1899 ± 1054 ; $p \geq .500$. As with *parnaparnti* distributions, this makes for asymmetries in production: on average, high ranked foragers produce and share out more edible weight (all resources) than they receive following distributions of *kirti-kirti* (Figure 3). This has a dramatic effect on *take-home* efficiency (gm *received*/hr foraging after distributions): *kirti-kirti* sharing serves to even out what would be asymmetries in production with one-way flows from high producers to low producers, which create asymmetries in the ratio of costs spent to benefits gained. More efficient foragers (gm *acquired*/hr foraging) have post-sharing consumption return rates that are on average less than or equal to less efficient foragers (Figure 4; $p \geq .350$). Low ranked and unranked foragers gain the most

by being present at a *kirti-kirti* distribution: their average return rates increase three fold.

Prediction 3

Relative to prediction 3 above, we find no significant effect of co-residence or affinal relationships on distribution patterns at *kirti-kirti* or *parnaparnti* dinner-time camps. Co-residents and non-co-residents of *kirti-kirti* hunters receive an average post-distribution share of 1736 ± 1102 gm and 1370 ± 998 respectively ($t = -1.5$, $p < .200$). Affinal kin (mother-in-law, father-in-law, or brother-in-law) of *kirti-kirti* hunters receive shares no larger than anyone else (1215 ± 1007 edible gm for others vs. 1868 ± 1290 for affinal kin; $t = 1.9$, $p < .100$). For *parnaparnti* hunters, a co-resident's take-home share is 481 ± 339 gm vs. 488 ± 377 for non-co-residents ($t = .08$, $p < .900$). Affinal kin of *parnaparnti* hunters receive an average *parnaparnti* share of 507 ± 394 gm. Others receive 459 ± 355 gm on average ($t = -.11$, $p < .800$).

DISCUSSION

Gould (1981, 1982) does a good job of articulating a common ecological explanation of food sharing and egalitarianism among desert Aborigines: reciprocal sharing serves to minimize risks in an inherently risky environment that constrains the development of hierarchy. Security in highly unpredictable environments rests not storing goods for future, but in storing debt. Sharing serves as a means of storing social capital against which one can draw later during shortfalls. And since material resources are not stored, there is no basis for enduring wealth and social inequality. "The greater the degree of risk, the wider the extent of sharing. Conversely, the greater the opportunities for optimal harvesting with minimal risk... the greater the tendency for aggrandized behavior." (Gould 1982:76)

Based on this argument, we would expect that a current share given is advanced payment for future shares to be returned. Our results suggest otherwise. Individuals receive shares whether or not they give them, regardless of the degree of risk associated with the foraging activity. Even sharing means that a consistently more productive hunter will gain less from others than he or she gives away. It could be that such inequalities are not sufficient evidence to reject the notion that individuals are sharing in order to reduce consumption variance associated with acquiring high-risk resources. But we think this confuses the process of sharing with the goals of foraging. The sharing process involves flows from those who have to those who have not, eliminating any variance in consumption across individuals on any foraging day. But this does not involve eliminating variance in the costs of acquiring prey—individuals who pay a higher cost in time to get more, are subsidizing those who pay less. The question then arises, if individuals are foraging for variable resources and managing variance with sharing, why produce more than anyone else? While individuals may

indeed be sharing to reduce present inequities in consumption, the benefit of acquiring certain resources lies not in future portions received. If they were sharing in order to reduce their own variance in consumption over time, sharing would be inequitable, not equitable. The mystery is thus not why people share, but why some people produce (and share) more than others.

Why Production Inequality and Sharing Equality?

We suspect that Martu food sharing is so even because hoarding depends on the refusal to share. While overt demands at distributions are rare, the pattern of Martu sharing conforms with what Peterson (1993) has termed demand sharing. As Myers (1986:113-116) describes for the neighboring Pintupi, Martu food sharing is an expression of shared identity, it emphasizes relatedness through generosity (“We share because we are all one family”). While it is not considered offensive for people hide small portions of food or tobacco to reduce demands, if asked, it is very rare for an adult to refuse a demand. In the food sharing among participants of a foraging party, who acquired what is known by all and asking for shares is rare because distributors make efforts to anticipate any potential demands. Under such circumstances, someone who is less than generous would be considered less than human: as Martu say, they would be “like rocks”, incapable of expressing compassion (*nyarru*). The *miltilya*, elder men and women who are renowned for their hunting prowess and magnanimity, are said to be truly compassionate and human.

Such patterns are also predicted in what Blurton Jones (1984, 1987) has formally modeled as tolerated theft. Sharing is unconditional with respect to reciprocity, and goods flow from those that have more to those that have less based on the social pressures to be generous. But if individuals present at dinner-time camps receive shares whether or not they give them, they can free-ride on the efforts of others. As Hawkes (1992) points out, the shared items are then like public goods, and providing them presents a collective action problem. Where acquisitions are unsynchronized, it is thus better for the group if everyone shares more, but better for each individual to adjust their work effort around more reliable resources to acquire just enough for themselves and share less. Wiessner (1982) and Sahlins (1972) provide clear examples of people limiting their work effort with concerns about the opportunities it will provide for people to free-ride on it. Under such conditions, where there are no sanctions against free-riders, what factors might maintain the inequality of work, exaggerated by the equality of distribution?

Links Between Sharing and Leadership

“... [sharing] does more than simply distribute the catch. It also doubles the rewards to the hunter by according him both social prestige as a good kinsman and meat when he takes his share from someone else’s catch” (Gould: 1982:73).

Many, including ourselves, have suggested that the signaling benefits of hunting and magnanimity may solve the collective action problem engaged by sharing (see Hawkes and Bliege Bird 2002, Bliege Bird and Smith 2005 for review). The fact that among Martu, inequalities of production are exaggerated by the equality of sharing isn't anomalous if we assume that certain kinds of foraging variance are especially effective as honest displays of magnanimity. The extent to which individuals can provide "public goods" may thus serve to sustain the material egalitarianism of every day life on one hand and the ritual gerontocracy on the other.

The egalitarian nature of every day social relations seems to counteract the structured hierarchy of ritual ownership and performance, where individuals compete to gain more knowledge in order to establish a gerontocracy of control over the younger generation's life histories, to gain ownership over dreams and dances and sites of sacred significance. But maybe there is no real contradiction. The apparent social symmetry is not the result of the prevention of social competition, but social competition so strong and so universal that everyone must invest in it simply to stay in the same relative place on a positional treadmill.

The social distinctions that do arise are not those of material possession, where individuals are marked by what they own or can claim, but of dispossession. Distinctions are made by the lack of attention to material ownership, the careless treatment of property that is the true sign of the competitive ascetic. The most respected individuals wear cast-off clothing, own nothing but their tools, deny nothing to anyone, claim no prerogatives, and make no decisions for anyone else. The hierarchy of ascetics is based not on prerogatives claimed, and power exercised, but on honest performance of the opposite—on occasions when one might exercise power, one quietly demurs to another. Thus, the elderly *maparn* (healing ritual expert) sits quietly in the back of the vehicle, giving the "shotgun" position to a young man searching for bustard. If we make the mistake of assuming that the benefits of social status are to claim resources for one's self, we might erroneously ascribe greater status to the young man, who claims the highly desired, comfortable front seat, forcing the old man to sit cross-legged in the back on top of a plastic box of tinned tuna. But it is the old man who has demonstrated his power by refusing to claim the seat when he very well could have, who has given the seat away to the young man. Only those who "own" have the power to give, and giving is a signal of one's ownership. Ironically, only by demonstrating disengagement with property can one claim inalienable possession of it (Wiener 1992).

Yet the *miltilya* is not simply a person who frequently gives, but a person who frequently has things to give—a person who works harder than others so that surplus production can be distributed to all. A *miltilya* merely carries the food that belongs to others. The distinction then is not between those who own the least,

but those who honestly demonstrate the most 'disengagement', those who do not simply produce little, and consume it all themselves, but those who sustain the largest differentials between what is acquired and what one actually consumes. The hierarchy that develops out of competitive asceticism is obscured simply because it has no immediate material component.

How does such a competitive regime become established? How do individuals benefit from such disengagement with power, if not through enhanced resource control or access? Social signaling theory may offer a possible explanation for how such public-spirited altruism might actually benefit both the altruist and those who observe her. Under certain conditions, some foragers may seek costly strategies that carry with them inherent risk as a means of display (see Bliege Bird and Smith 2005). This is because being able to carry such risk while still succeeding, with an attitude that discounts future reliability (via storage or reciprocity), honestly displays qualities that are difficult to assess otherwise. When some begin to display thusly, it creates incentives for others to do likewise. If the display is embedded in acquiring unpredictable resources, escalating competitions can undercut hierarchy (Hawkes 2000).

We suggest that it is a focus on high variance resources that ensures that prowess and magnanimity of *miltilya* hunters can be displayed - all hunters then have to compete to show these skills just to stay in the same place on a positional treadmill. That food sharing, and by extension the daily business of life, looks and feels so egalitarian may actually arise from competitions to provide public goods. This accords with the modesty of the *miltilya* hunters: talk is cheap and success for unpredictable resources that are widely shared is costly. Being able to bear these costs without care for future reciprocity guarantees the validity of the signal.

The question then remains - how is that among Martu, but not so much among other "egalitarian" hunter-gatherers, very real power over others is maintained under ritual circumstances? We suggest that hierarchy in the mundane realm is obscured by the nature of social distinction--the fact that individuals gain by divesting themselves of resources, and in so doing, claiming ownership of them, not by hoarding more for themselves. Everyone has the opportunity to gain this distinction, primarily because *parnaparnti* hunting is so predictable and productive, and the materials by which production is achieved are so generalized (hand and stick). Paradoxically, this promotes both the widespread renown of individual hunters (those recognized as *miltilya*) and discourages asymmetrical hierarchy. However, not every individual has access to the secret/sacred knowledge that serves to mark position in the ritual hierarchy; such knowledge is closely guarded, divulged only to those individuals that have paid the cost (initiation) to demonstrate their trustworthiness. Those with more knowledge thus have power over those with less. Some have argued that the two realms are linked, especially for men: men produce generously because in doing so, they demonstrate their commitment and concern for "The Law", and are more likely

then to rise in the ritual hierarchy, pass the final stage of initiation, and marry their promised wife (Sackett 1979, Tonkinson 1988a). In that sense then, men produce more than others as a way to gain political and reproductive advantages through competition with other men. But what do women gain from generosity? We have suggested (Bliege Bird and Bird, submitted) that in sharing with other women, they secure a partner for cooperative hunting arrangements, specialize on different foraging activities, or between childcare and foraging, and in so doing, may enhance the survival and well-being of their children (see also Wiessner 2002 for a similar argument for the benefits of generosity among the Ju/'hoansi).

CONCLUDING COMMENT

We began this paper by reviewing some of the common assumptions about the ecology of subsistence and dominance. Many have argued that enduring leadership requires wealth differentials, and that when the accumulation of goods is limited by an unpredictable resource base, reciprocal arrangements are favored and more balanced social relations result. Based on an analysis of Martu foraging and sharing, we suggest another possible route: egalitarianism as a hierarchy of ascetics. We argue that without “disengaging” property (Tonkinson 1988b: 550) through honest signals of ability vis-à-vis generosity, hunters would quickly lose their place on the positional treadmill. The social distinction of generous Martu hunters (*miltilya*) is subtle, but widely recognized. That they demonstrate little obvious authority to speak for or control others in everyday life may result from not only from the fact that even the best hunters often fail, and sometimes the least skilled succeed (Hawkes 2000), or that their authority is to some extent “offset by the loss of prestige following the effects of age on hunting and fighting skills” (Meggitt 1962: 250), but more fundamentally because nearly everyone can potentially acquire a meat surplus without specialized technology or monopolizable training. Such circumstances favor the pursuit of distinction through costly ascetic performance, undercutting wealth asymmetries while at the same time promoting differential control of labor and production surrounding access to ritual hierarchy.

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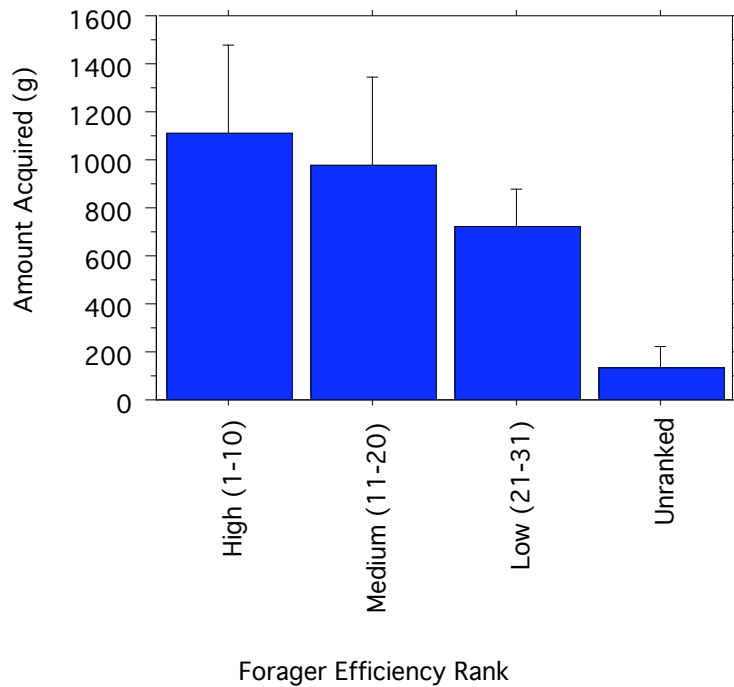
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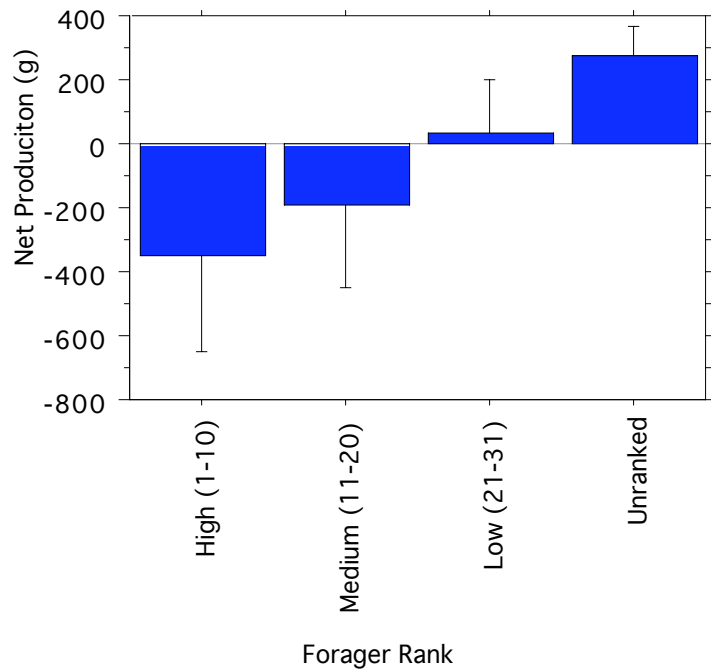
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Figure 1. *Parnaparnti* (sand goanna) hunting: amount acquired.



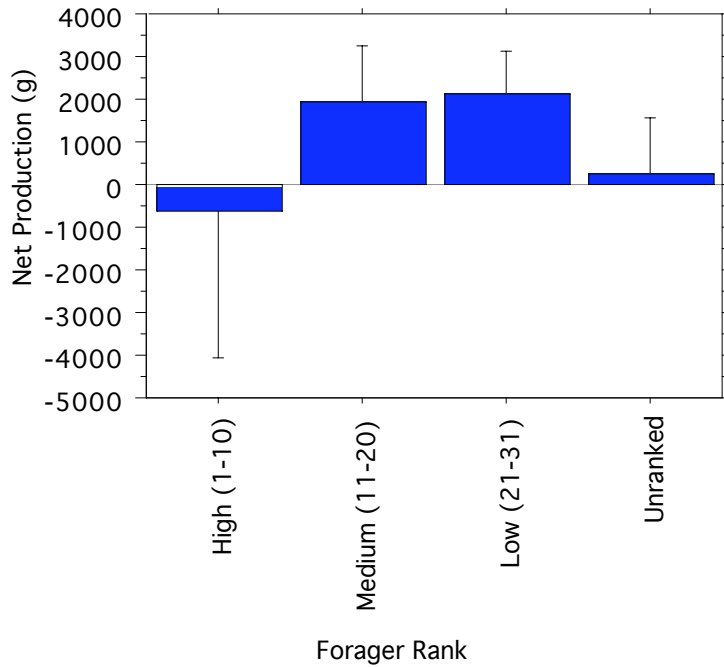
Amount Acquired is the total edible weight acquired per *parnaparnti* hunting bout. Forager Efficiency Rank is the mean efficiency (kcal/hr foraging) over all foraging bouts in all activities for 31 individuals for which we recorded more than ten foraging bouts. Unranked individuals are those on which we have recorded less than ten recorded foraging bouts (see text).

Figure 2. Parnaparnti (sand goanna) hunting: take-home share minus amount acquired.

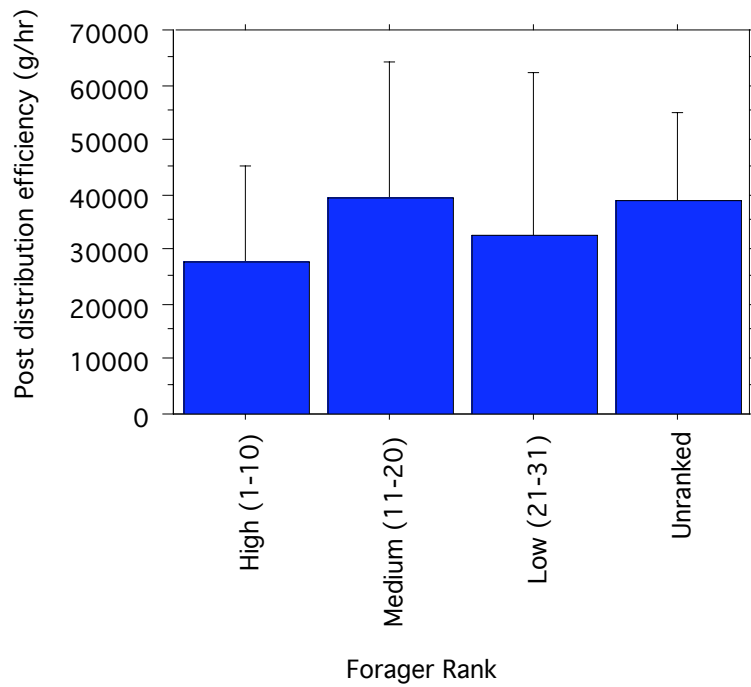


Net Production is the take-home share (total edible weight of a forager's share for consumption after primary distribution) minus the amount the forager acquired per *parnaparnti* hunting bout. Forager Rank is as defined in Figure 1.

Figure 3. *Kirti-kirti* (euro) hunting: take-home share minus amount acquired.



Net Production is the take-home share (total edible weight of a forager's share for consumption after all distributions) minus the edible weight of all resources the forager acquired on the day of a *kirti-kirti* hunt. Forager Rank is as defined in Figure 1.

Figure 4. Take-home efficiency following *kirti-kirti* (euro) distribution.

Post-distribution efficiency is the take-home share (total edible weight of a forager's share for consumption after primary distribution) per foraging hour per bout. Forager Rank is as defined in Figure 1.