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HUNTING THE CUSCUS IN WESTERN SERAM: THE ROLE OF THE PHALANGER IN SUBSISTENCE ECONOMIES IN CENTRAL MALUKU

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Introduction

Various species of the family Phalangeridae, commonly known as cuscus (also known as *kuskus*, or *kusu* locally in central Maluku), may have been an important terrestrial meat resource in traditional subsistence diets throughout Maluku.[1] Only a few groups continue to hunt cuscus today. Traditional and modern hunting techniques are practiced, and the cuscus meat is highly valued for its flavor, nutritional contribution, and importance in various ritual events and special occasions. Cuscus hunting, processing, and consumption practices have important implications concerning dietary diversity and eating behaviors that may differ significantly between village, garden, and forest contexts. Furthermore, the exploitation of cuscus fits well within the unique arboreal-based subsistence economy[2] that characterizes many past and present groups in Maluku.

Mammals in Maluku

Due to past geological conditions and permanent water barriers throughout the Pleistocene and Holocene, large terrestrial mammals were unable to migrate to most of the Malukan islands. Some mammalian species are known to be adequate swimmers and may thus have independently crossed limited water barriers. However, there is currently no substantial evidence to support or refute these claims in Maluku. Human populations likely colonized Maluku in the late Pleistocene or early Holocene and were confronted with an environment that was relatively devoid of terrestrial mammals. Large mammalian species found in Maluku today have been introduced by humans during the Holocene. Some species of pig (*Sus* sp.,

Babyrousa babyrousa) may have reached Maluku independent of human introduction during the late Pleistocene through the mid-Holocene. The dog *(Canis familiaris)* and some pig (*Sus* spp.) species were likely introduced during the Holocene. More recently, the cow *(Bos javanicus)*, goat *(Capra hircus)*, deer *(Cervus timorensis)*, cat *(Felis catus)*, horse *(Equus caballus)*, rabbit *(Oryctolagus cuniculus)*, and civet *(Viverra tangalunga* and *Paradoxurus hermaphroditus)* have been introduced to the region. Ellen (1972: 224) notes, "of the eleven genera of terrestrial mammals [occurring on Seram Island, central Maluku], about half are regarded as having been introduced by man, probably since the fourteenth century, either deliberately or by accident." Smaller mammalian species found in Maluku include some species of bandicoots, shrews and rodents, as well as numerous bat species.

There are at least 24 species of Phalangeridae that range from Tasmania to the Talaud islands, and from Sulawesi to the Solomon Islands. Atypical of other Australasian marsupials, a few cuscus species are found in the northern hemisphere, further attesting to their widespread distribution and adaptability. Most cuscus species likely originated in New Guinea and were translocated by humans to island areas outside of New Guinea and Australia. Phalangerids have been translocated more frequently than any other marsupial species. However, a possibility exists that some species may have reached various islands in Maluku prior to human colonization. For example, the bear cuscus (*Ailurops ursinus*, or its predecessor) likely became isolated on Sulawesi earlier than 30 million years ago.

Cuscus are medium- to large-sized arboreal herbivores that generally subsist on leaves, fruits, flowers, bark, and sometimes insects and meat. The species found in Maluku are generally nocturnal feeders and rest during the day in larger trees found throughout primary and disturbed forests. Though hard to locate during the day and seemingly scarce, populations are quite abundant. However, other regions (e.g., Irian Jaya) may be experiencing a decrease in overall cuscus populations due to a number of factors, including overpredation and loss of habitat. Carolyn Cook (pers. comm.) noted that some informants from Irian Jaya stated that they noticed cuscus were currently more difficult to locate than in the past.

Prehistory and archaeology of the cuscus

Evidence suggests that cuscus species were transported to New Ireland (Papua New Guinea) as early as 10,000–20,000 years ago (Flannery &

White 1991). Some species were introduced to the Solomons as early as 6600 years ago (Flannery & Wickler 1990) and to Timor as early as 6500 years ago (Glover 1986). Flannery (1995: 96) implies that *Phalanger orientalis* may have been actively introduced to Seram, Buru, Sanana, and the Kai Islands but the date of initial introduction remains unknown. The period when the spotted cuscus *(Spilocuscus maculatus,* also *Phalanger maculatus)* reached central Maluku and the ornate cuscus *(Phalanger ormatus)* reached northern Maluku remains enigmatic as well, though they likely arrived in Maluku well in advance of other large terrestrial mammalian species.

Cuscus remains are present in archaeological contexts throughout eastern Indonesia and the New Guinea region, indicating their contribution to early subsistence diets. In New Ireland, the Matenbek Site's faunal assemblage from 18,000–20,000 years ago was dominated by *Phalanger orientalis* (Gosden 1995: 811; see also Allen in press). *P. orientalis* remains were also present in the Matenkupkun, Balof 2, and the Panakiwuk Sites from New Ireland as early as 13,000 B.P. (Gosden 1995: 813). The Kilu Site in the Solomons yielded phalanger remains dating to 9000 B.P. (Gosden 1995: 813; see also Hope & Golson 1995: 826 for additional discussions on late Pleistocene or early Holocene faunal remains from the New Guinea region).

Phalanger ornatus remains were recovered from the lowest cultural deposits (dating to approximately 3500 B.P.) at the Uattamdi Rockshelter Site on Kayoa Island near Halmahera and also from the preceramic deposits (approximately 5120–3410 B.P.) in the Gua Siti Nafisah Site in southern Halmahera (Bellwood et al. 1993). Two species of cuscus are represented in the Paso Shell Midden Site located on the Minahasa Peninsula of northern Sulawesi that dates to approximately 6500 B.C. (Bellwood 1985: 190). The Ulu Leang Site from southern Sulawesi and other Toalian sites (associated with Sulawesi sites commencing from about 6000 B.C.) also contain cuscus remains (Bellwood 1985: 198; see also Hooijer 1950).

The apparent lack of cuscus remains from sites in central Maluku likely reflects limited testing of archaeological sites in the region rather than indicating that cuscus was not a component of early subsistence diets. Currently, only about three sites in central Maluku have been systematically excavated (Stark 1996). However, historic accounts attest to the presence and importance of cuscus within the Maluku region. Wallace (1962[1869]: 301) relates, "the natives everywhere eat their [cuscus] flesh, and as their

motions are so slow, easily catch them by climbing; so that it is wonderful they have not been exterminated."

Future testing of archaeological sites and faunal assemblages in central Maluku will help answer questions concerning the distribution and exploitation of Phalanger species. The possible early introduction of cuscus into the Maluku region by human populations may yield important implications with regard to early migration and trade routes and prehistoric subsistence diets.

The cuscus in Central Maluku (specifically Seram)

Two species of phalanger are commonly found dispersed throughout the forests in central Maluku. Local inhabitants often recognize three or four species. However, MacDonald et al. (1993) suggest that sexual dimorphism and developmental variation (e.g., coat color) may account for the greater number of locally recognized species. Inhabitants of Maluku that continue to hunt cuscus have detailed knowledge of them, especially in regards to sexual differences, age-developmental differences, habitat, and behavior. These may be factors involved in indigenous classifications that suggest the existence of additional species (Ellen 1972: 226–227). There is also a possibility that additional species may have historically existed in central Maluku but are currently no longer present or have somehow eluded scientific inventory (Ellen 1972: 224).

Two species of cuscus are commonly hunted in western Seram, *Spilocuscus maculatus* and *Phalanger orientalis*. *S. maculatus*, known as the spotted cuscus, is a nocturnal tree-dwelling species that weighs 1–3 kg. The spotted cuscus feeds primarily on fruits and leaves in the forest canopy at night, although insects and small vertebrates compose a portion of the diet. The distribution of this species includes New Guinea, Aru, Kei, Buru, Seram, Ambon, Selayer, Banda, Pandjang, Timor, and Cape York Peninsula, Australia. *P. orientalis*, the grey cuscus or common phalanger, is also an arboreal species that weighs approximately 3–4.5 kg. The grey cuscus also feeds on leaves and fruits as well as a variety of other foodstuffs. The distribution of the grey cuscus is significantly more extensive than the spotted cuscus.

Cuscus are generally reported to live in open woodland and forest areas below 1000 m. in altitude. However, four individuals were reported at or above 2500 m. on Seram (MacDonald et al. 1993: 164; see also Thomas 1920), which may indicate distribution is not limited by altitudinal zonation.

Whether or not altitude affects population density is unknown. Suitable habitats and the availability of adequate plant-food resources are likely responsible for distribution rather than altitudinal zonation, although the latter has a significant effect on the distribution of plant communities, which may then affect the distribution of cuscus populations.

Some sources suggest that cuscus distribution may be affected by human land-use practices and settlement. Flannery (1995) suggests that some cuscus populations may be more prolific in disturbed secondary forest rather than primary[3] forest due to the greater abundance of food choices. Modified landscapes and plant communities may provide more suitable habitats and food resources. Furthermore, the lack of human predation from Islamic communities (cuscus being considered unsuitable for consumption by Muslims[4]) may be attractive to cuscus populations. As Flannery (1995: 99) states,

> In parts of the Moluccas the Northern Common Cuscus can be abundant—even in villages—as Muslims do not hunt it. Indeed, it tends to be more common in gardens than in primary forest because of the concentration of edible plants there.

However, informant testimony and participation in hunting forays indicated a preference for targeting areas outside of the immediate current settlement areas, villages, and garden plots. Cuscus were fairly common in disturbed, managed, and primary forests. These areas included unmodified forest, forest areas with limited modification (usually targeted and occasionally managed due to the presence of various forest resources), forest areas near abandoned or old settlements/villages (now used as traditional hunting and resource extraction areas), and forest areas near the numerous more frequently managed clusters of arboreal and garden resources.

Hunting

Cuscus hunting forays are often planned before special occasions (e.g., birthday celebrations) in order to provide future guests with the greatly appreciated meat. (These inferences are based on some six months of residence among Alune villagers in 1993–95, which included participation in forest activities and standard ethnographic data collection.) In actuality, however, there is little planning and discussion, as any excuse to spend time in the forest is often exploited. Most of the informants openly stated they preferred spending time and living in the forest as opposed to the village. The forest was often considered a more leisurely and comfortable

environment. Cuscus hunting was considered both enjoyable and a great justification for spending time in the forest.

A successful hunting foray can be accomplished in as little as a few days. Furthermore, hunting forays almost always entail: (1) checking and collecting various forest resources, (2) visitation with other village members who may be collecting forest resources, (3) repair, maintenance, and provisioning of the numerous forest dwellings *(walang)*, and (4) exploring new locations for potential forest resource exploitation, the development of forest gardens, and *walang* construction. Cuscus is also generally hunted while engaging in any long-term activity in the forest.

Foray parties are composed of anyone who desires to participate. The size of a hunting party may range from only two or three individuals to ten or more. Adult males almost exclusively compose hunting parties (this includes younger adolescent males as well), although females often attend forays to the forest for collecting arboreal resources. As any forest foray, regardless of the central task, often includes cuscus hunting, females are often indirect participants in hunting, even more so when hunting parties are engaged in diurnal hunting pursuits.

A variety of hunting and trapping techniques are utilized. Air rifles are often the preferred hunting weapon. However, the scarcity of air rifles in the village results in the frequent use of hardwood bows and arrows. The bow and arrow is said to be the traditional weapon for cuscus hunting. Men openly enjoy use air rifles or bows because of the satisfaction of demonstrating marksmanship. Men generally explore good hunting locations during the day and then return at night where they wait and listen for the prey. A flashlight is often used to temporarily blind the cuscus and locate the target (either in the tree or on the ground). The cuscus is then shot with the air rifle or arrow.

Simple wooden clubs may be used (generally by young males) to beat a cuscus that has fallen or been forced from a tree (Ellen 1972: 229). Spears may be used but are not considered usual hunting weapons for cuscus. However, spears are almost always carried to the forest during forays and are often utilized for numerous tasks that may include killing a captured prey or beating it unconscious. Furthermore, the Nuaulu on occasion utilized simple spears made of bamboo to kill cuscus (Ellen 1972: 229). By contrast, blowpipes were never used. However, this is not surprising since blowpipes are, with few exceptions, not a component of the hunting kit. Informants claimed they never heard of anyone hunting with a blowpipe as

a traditional hunting practice. Of special note, one informant from Ambon Island, who often frequented Seram for several months a year in order to procure meat, utilized a powerful spear-gun (of the "rubber-sling" type with a strip of rubber utilized to project the spear, typically used for spearing fish) for both pig and cuscus. Dogs often accompany foray parties to the forest but are generally not actively utilized to hunt cuscus.

Diurnal and nocturnal hunting practices differ considerably. During the day, cuscus were generally hunted while collecting forest resources and foraging for other foods. The preferred method was to spot a typical cuscus resting place (generally in the fork of a tall tree). A younger male (often one of the adolescents 10–13 years old) would climb the tree if a cuscus was located. The youth would then grab the cuscus by the tail and bash it against the tree until dead. If a cuscus was spotted in a tree too difficult to climb, it was generally shot with an air rifle or arrow. This latter method proved to be less successful than the former during day hunts.

Nocturnal hunting was exclusively a hunting foray and not associated with other activities. At night, hunters would generally wait in ambush in preselected locations while listening for cuscus movement. Night hunting almost exclusively entailed shooting the prey with air rifles or bows. Hunters also attracted cuscus by mimicking their calls (see also Ellen 1972: 229).

Various small rituals (of a more personal than institutionalized nature) were often conducted to increase success. These included prayers, drinking alcoholic beverages before a night hunt (also said to keep the body warm), and sometimes setting out food offerings. Carrying any currency into the forest was considered to bring bad luck. Also, simple bracelets made of bamboo strips or other plant materials were worn on occasion during forest forays for protection and success.

Ellen (1972: 228) notes that cuscus falls under a special ritual category of large game beasts, *peni*, for the Nuaulu of south central Seram and "are subject to prescribed modes of distribution and involve an offering to the ancestral clan spirits each time such an animal is killed." He further notes, "such ritual attitudes are noticeably absent with regard to the cuscus." The current investigations noted no specific hunting rituals or offerings specifically for the cuscus (during the hunt). Rather, rituals and offerings were said to be part of hunting, although cuscus was by far the most frequently hunted terrestrial species. Ellen (1972: 228) also suggests that mandibles are

kept on occasion as trophies to secure future fortune while hunting and/or attest to an individual's hunting prowess.

Traps and snares were said to be utilized on occasion, though traps specifically oriented for cuscus capture were not identified during the research seasons (see also Ellen 1972: 229). Healey (1995) discusses the importance and use of traps and snares by Aru Islanders, noting that cuscus is a common prey. Informants in Seram said they used traps on occasion for cuscus but more commonly for birds, bats, and other animals.

MacDonald et al. (1993) describe the use of sapling ladders in New Guinea. The hunter will climb the tree on a moonlit night and wait in ambush for the cuscus. For the Kalam, Bulmer (1990) discusses five main hunting modes in which various cuscuses are targeted: (1) the diurnal arboreal search—exclusively men, (2) the nocturnal ambush (shooting)—exclusively men, (3) tracking from gardens (with dogs)—men or women, (4) trapping or ambush—exclusively men, and (5) the diurnal terrestrial search—exclusively women. Interestingly, Bulmer (1990) notes that bandicoot hunting is almost exclusively conducted by Kalam women (with a high degree of success), while the hunting of larger terrestrial and arboreal mammals is exclusively practiced by men. Informants from Seram stated that men generally hunt but women were not excluded from participation if they desired. However, especially with regard to nocturnal hunting forays, implications were that hunting was exclusively practiced by men.

MacDonald et al. (1993: 164) further describe additional hunting techniques practiced on Seram:

> On Seram the hunter will either climb an adjacent tree and shoot the cuscus with an arrow, or force the animal onto the ground by cutting down the tree. Alternatively, weighted noose-snares are set up on artificially created arboreal pathways constructed of saplings placed between patches of primary vegetation.

However, during the current research seasons in western Seram, none of these methods were employed. Informants claimed that they used snares on occasion and frequently climbed adjacent trees during the day in order to position themselves for better aim, but did not cut down trees in order to force the animal to the ground.

Processing

Once a cuscus is captured, cleaning is fairly quick and efficient. The belly is split open with a knife and the intestine removed. A small slit in the

intestine is cut in one or two locations. The contents of the intestine, considered unsuitable for eating, is drained by squeezing down the intestine with the fingers so that the contents exit through the slits. The dead cuscus is then carried back to the *walang* at the end of the day or night where it is further prepared for smoking.

At the *walang*, the internal organs are removed and cooked immediately with the next meal. The internal organs of one cuscus are commonly added to about ten crushed chilies, three teaspoons of salt, one small lemon, *papeda* (sago porridge), and cuscus blood (when available, a package of Mi-Won brand monosodium glutamate is occasionally added). This mixture is then placed into a bamboo tube and cooked directly in the fire. Often, other vegetables, fruits, leaves, and sometimes rice are added. Meals are often completed with large grubs (*ular/ulat kayu*, possibly *Oryctes rhinoceros*, Dynastid beetles or large Passilids; not to be confused with the significantly smaller *ular/ulat saga*, *Rhynochophorus bilineatus*, which are more commonly eaten in the village; phylogenetic glosses taken from Ellen 1993). Sometimes cuscus meat is cut and cooked with the meal, though the meat is often reserved for smoking and not usually consumed immediately following the kill. The cooked meal is divided evenly amongst all people present in the *walang*. Men are often noted to eat first, followed by women and children, but this hierarchy of eating privileges is more of a formalized protocol and was not often observed except during special occasions. Quite often, everyone present eats together.

The remaining cuscus carcass is then stretched over two or three crossed sticks and tied with bamboo strips.[5] The carcass is then placed over a rack above the cooking fire and smoked for a day or longer. The hair is often singed off rather than cut or skinned.[6] Smoked cuscus is consumed in the forest or the *walang* (generally consumed daily while in the forest), but is also carried to the village, where it is redistributed accordingly. All hunters divide the shares based on contributions to the hunting foray. However, preference is often given to those who need to supply cuscus meat for upcoming occasions.

Cuscus preparation and initial butchering (removal of the internal organs) is almost always conducted at the *walang*. Living in the *walang* during hunting forays is often lively and festive, with much eating, singing, and storytelling. After the foray is completed, the *walang* is cleaned and repaired if necessary. Frequently, various friends and family will use a well-equipped forest *walang*. Permission is not necessarily needed to use a

walang, but the structure is expected to be kept clean and stocked with the provisions and tools that were already present. The smoked cuscuses and other forest products are then transported to the village. Young cuscuses that were captured alive are sometimes kept as pets or set free.

Ritual and symbolic value, food and nutritional contribution

Cuscus is certainly not the only terrestrial meat resource in central Maluku. Birds, reptiles, bats, pig, goats, deer, and so on are also major contributors to the modern diets. Marine and riverine resources are also substantial dietary components. However, cuscus may have had a more important role in the past. Cuscus is abundant, easily procured with a high degree of success (in terms of encounter rates and energy inputs during hunting forays), and is easily processed to extend preservation and transportability. Furthermore, targeting cuscus accords with the arboricultural subsistence economies characteristic of many groups in central Maluku.

Nevertheless, two primary reasons are likely responsible for less cuscus exploitation today than in the past. First, Islamic dietary restrictions (or perceived restrictions) preclude the cuscus from entering the Muslim diet. When Islam was introduced and widely adopted in the region, cuscus predation likely decreased dramatically. Second, the introduction of other mammalian species and preferences for these meats may have reduced cuscus predation as well.

The few groups that continue to exploit cuscus generally regard the meat highly. A simple reason for the high regard may be a taste preference for the distinctive flavor. However, the cuscus may have additional cultural value.

Cuscus may be an historically important traditional food resource (especially prior to the introduction of other mammalian species) and the importance of the cuscus has been reinforced through its inclusion in ritual contexts, important events, and oral tradition. For some groups in Seram (and likely many places in eastern Indonesia), the cuscus is regarded as an important symbol and has furthermore achieved the status as a totem for some clans (Ellen 1972). During the current investigations, it was noted that cuscus is almost always served for birthday celebrations *(ulang tahun)* and other important events. Cuscus is also important for birth ceremonies, post-birth rituals, and initiation rituals of males (see Ellen 1972). For example, informants related that cuscus is often included in some form during the occasion when infants ritually "exit" from the house *(anak keluar rumah),* so that the individual will be able to successfully hunt cuscus and provide

for the family. Cuscus is often served for other occasions including Christmas, baptisms, wedding festivities, special event days for the village, and a number of other important personal and village events. The inclusion of cuscus in ritual occasions may indicate that cuscus has not only remained an important symbolic element, but has also remained an important contribution to subsistence/diet for numerous generations and perhaps thousands of years. Furthermore, the inclusion of a hunted forest meat resource may have additional symbolic and cultural value that a domesticated slaughtered meat resource may not be able to provide.

Cuscus is also an arboreal species and is thus entwined within the arboreal-based economic and symbolic sphere that is central to Malukan culture. Cuscus is also hunted and success in cuscus hunting is important for identity and esteem. Furthermore, extending what was stated by Healey (1995: 63) concerning trapping, cuscus hunting, "may also operate at a symbolic level, as indicative of an essentially foraging economy." These reasons may contribute to the high regard for cuscus hunting and the consumption of cuscus meat.

Similarities between humans and cuscus (who share many similar morphological features) may also be responsible for additional symbolic value. Ellen (1972) discusses this topic in depth and provides some interesting comparative discussion that will not be detailed in this work. However, Ellen (1972) further notes the undertones and implications that cuscus hunting and ceremonial inclusion in many rituals may have concerning headhunting and the abandonment of headhunting practices. In essence, cuscus may have become somewhat of a substitute for severed heads required for some traditional rituals and rites of passage. Ellen further notes that the inclusion of cuscus in rituals unrelated to headhunting (e.g., birth rituals) further attests to the cuscus' importance as an anthropogenic symbol of a different caliber (fertility, success, origins, etc.).

Cuscus may also gain symbolic value because it is considered a wild meat. Although chickens, cows, and a few domestic pigs were present in the village, these were almost never consumed. The lack of consumption may have been due to the economic importance of these domestic animals because sales generally produced a substantial supply of cash needed for various reasons. However, several informants disclosed their preference for wild meats. (The meats most often mentioned by those interviewed were cuscus and wild pig, with cuscus significantly outranking wild pig, although this may only indicate the greater difficulty in obtaining wild pig.) Also,

forest birds, forest bird eggs, bats, and reptile eggs (especially *telur biawak*) were often preferred over domestic varieties. Although reptile meat was not openly stated to be eaten or preferred due to cultural restrictions and associations with impure or dangerous forces. Although some informants have suggested snakes are associated with the serpent in the Bible and are thus evil, others disclosed that snakes are a preferred meat and often used for medicinal purposes. Informant interviews and discussions with friends highlighted a general preference for wild as opposed to domesticated meats.

Cuscus meat also provides a substantial contribution of protein to the diet. Ellen (1978: 70) noted that cuscus meat was the third largest contributor of animal protein to the Nuaulu diet in Seram. This may not be as evident in the village context because cuscus consumption is likely far greater in the forest context, a general pattern noted during current investigations. This pattern has implications concerning dietary diversity and differences between village, garden, and forest contexts.

For instance, the internal organs of the cuscus were only eaten in the forest. Also, more cuscus meat was consumed in the forest; on daily basis in most cases. Cuscus was only eaten in the village during special occasions. Furthermore, substantially greater amounts of "wild" foods were consumed in the forest, many of which were never seen in the village. Some of these included a variety of birds, bird eggs, reptiles, reptile eggs, fruits, nuts, leaves, other plant materials, grubs (only the *ular sagu* was eaten in the village, while the much larger *ular kayu* was often consumed in the forest), and freshwater prawns and eels. Furthermore, consumption of food in the forest was characterized by continual foraging and eating while only three or four eating events characterized consumption in the village (though food is often consumed more than four times daily while in the village).

The obvious differences in forest and village diets may make a complementary contribution toward greater nutritional balance overall. As most inhabitants (men, women, and children) are quite mobile and often frequent the forest on numerous occasions throughout the year for durations as long as one or two months, individuals may enjoy the benefits of both diets. Further research is needed in order to quantify the contributions of the forest diet for various classes of individuals. General trends and pressures towards increased sedentism may have serious repercussions on future diets and nutrition. (See related article on village diet and nutrition by Novotny et al. in this volume).

Conclusion

The cuscus has proven to be more than a mere curiosity and occasional pet. Cuscus provides a substantial protein contribution to traditional diets in central Maluku, and has likely made an important contribution to subsistence diets since the islands were colonized thousands of years ago. Cuscus also has an important role in various ritual and special occasions, which testifies further to its ancient and important contribution to traditional diets.

Cuscus hunting incorporates a variety of techniques and technologies throughout Maluku, parts of Sulawesi, and the New Guinea region. However, only a few groups in Maluku continue to hunt and consume cuscus. This likely results from the adoption of Islam (in which cuscus is excluded from the Muslim diet) and the introduction of other mammalian species that have become preferred meat resources. Groups that continue to hunt and consume cuscus generally hold hunting practices, hunting skills, and the flavor of the meat in high regard. The high regard for hunting and consumption of this unique arboreal animal may also testify to the practical and symbolic importance of the forest and the traditional arboreal-based subsistence economies that are central to many inhabitants throughout Maluku.

Cuscus hunting and consumption practices further highlight a preference for wild/forest as opposed to domesticated/village meat resources for some central Malukan groups for a variety of reasons. Furthermore, cuscus consumption highlights dietary differences between forest and village contexts. These differences may be necessary complements to fulfill certain nutritional needs. Pressures toward increased sedentism and less reliance on subsistence resources from the forest may have significant nutritional, cultural, and environmental repercussions.

NOTES

1. The groups discussed in this paper refer specifically to a few Christian villages in Seram. Some information was collected during various surveys conducted on Ambon, Buru, Haruku, and Saparua as well. Archaeological evidence thus far includes northern Maluku, parts of Sulawesi, and the New Guinea region. Although the primary emphasis is on central Maluku, extensions may be drawn to the Maluku region as a whole. However, there may be several areas in which the ideas set forth in this paper do not apply. For instance, the southeast region in Maluku may be dramatically different from central or northern Maluku for a

variety of reasons. The reader should bear in mind that this study bears more directly on central Maluku and only loosely implicates the rest of Maluku.

2. Arboreal-based subsistence economies (sometimes referred to as arboriculture) imply a subsistence economy in which the maintenance, management, and exploitation of forest arboreal resources are central aspects. The most prominent example is the central role of sago (*Metroxylon sagu*) in Maluku. Clove and nutmeg trees are also major economic components. However, a variety of other forest resources (e.g., the numerous fruit- and nut-bearing trees such as *Canarium indicum*) are also significant contributors to the subsistence economy. The overall terrestrial subsistence economy for many groups in Maluku is dominated by arboreal resources.
3. The term "primary" forest here applies to mature forest that is not currently managed and has not been managed or exploited (e.g., arboreal resources directly and repetitively selected) for a considerable amount of time. However, throughout human occupation in Maluku, which likely began in the late Pleistocene, the environment has been substantially impacted, altered, and managed. This has undoubtedly had not only direct impacts, but also incidental or indirect repercussions. Thus, primary forest may once have been managed forest and/or been affected indirectly due to land use practices and environmental alterations (e.g., the introduction of foreign plant species).
4. In actuality, cuscus is not outside the class of *halal*, or acceptable, food products within the Muslim diet. There are several possible explanations for its inclusion with prohibited foods: (1) the meat has a very pungent odor, (2) the animal washes its face with its own urine, (3) it resembles a human, and (4) it lives in multiple habitats (Jim Collins, pers. comm.). These explanations are certainly worth additional exploration. Information concerning reasons for similar restricted food classes may yield redundant explanations that would support at least one of the alternatives.
5. With reference to the Nuaulu, Ellen (1972: 229) relates the following, which attests to additional ritual and symbolic value surrounding cuscus hunting, processing, and consumption: "When the cooking [of the cuscus] is completed the *asumate* [wooden skewer] is stuck in the ground in the belief that the spirit of the dead cuscus will return in the body of another, thus increasing hunting fortune. In this sense, it may be seen as returning the cuscus spirit to its properly allotted place in the cosmos and therefore ensuring the continuity of the cycle. In addition, it was explained to me, it is a sign informing the ancestors to come and share their food. The *asumate* also bears witness to hunting skills and is thus a symbol of prestige."
6. Ellen (1972: 229) notes that the Nuaulu remove cuscus skins; sometimes while the animal is still alive. Also, cuscus skins are utilized for the manufacture of various items, including hats, in Irian Jaya. Cuscus bones (particularly mandi-

bles) are also sometimes utilized as borers, gravers, and other implements (Ellen 1993: 35).

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