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Spotted Cuscus *Spilogale maculatus*, a species native to West Papua and hunted for local consumption.

Middlemen on motorbikes, transporting a deer that they have purchased from the villages connected by roads along the coast of Amberbaken District.



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Wildlife products are valuable commodities, and wild meat is sometimes considered to be of premium value owing to its high value per unit weight compared with other forest products (Williamson, 2002).

Across the humid tropics therefore, millions of people rely on wildlife hunting for an alternative source of family revenue (Bennett, 2002; Milner-Gulland *et al.*, 2003).

There have been few studies on wildlife hunting in West Papua, Indonesia. What has been understood thus far is that indigenous hunting across West Papua has long been practiced for subsistence purposes, with a strong connection to cultural rites and mostly using traditional hunting techniques (Petocz, 1994; Pattiselanno, 2006; Pattiselanno, 2008). However, despite the importance of subsistence hunting to local communities, and its impact on the forest biodiversity in New Guinea, there has been limited research into the various reasons behind wild animal exploitation, and its importance in the household economy of the people of this area is poorly documented.

COMMERCIALIZATION OF HUNTING IN THE

Between 2011 and 2012, the authors undertook a study on indigenous hunting along the coast of Bird's Head Peninsula with the aim of observing its contribution to local livelihoods. With limited access to resources within the marine protected areas, most households in the study sites along the coast are farming families who rely on hunting for both food and sale to support their livelihoods. It was found that there is a strong relationship between the purpose of hunting and target species hunted along the coast. In common with most parts of the world where wildlife hunting takes place, hunters in West Papua prefer large-bodied hunting prey. These species are the most important source of income where trade has been documented (Fa and Brown, 2009; Robinson and Bennett, 2000), apparently because of the large amount of meat each animal provides. The principal species targeted are deer *Cervus timorensis* and wild pig *Sus barbatus*, introduced species which, in most cases, are the predominant animals on sale in the wild meat markets.

Hunters interviewed indicated that they hunt to meet the demand for wild meat in the nearest towns (Prafi, Manokwari and Sorong). However, the harvested meat may also be transported beyond West Papua. Wholesalers from other parts of Indonesia such as from Makassar off southern Sulawesi and Buton island of central Sulawesi bought wild meat from West Papua and transported it by boat for sale in Sulawesi.

The authors traced the trade across eleven sampled villages. They found that wild meat is sold fresh, though may sometimes be frozen depending on the distance to the market. The price per kilogramme ranged from USD1.5 to USD2.0 for wild pig and USD2.0 to USD2.5 for deer meat (venison). The movement of meat from the villages to Prafi or Manokwari involved transportation along the coast and resulted in a price per kilogramme of meat purchased from middlemen of USD5/kg, or twice the price at its source.

These observations suggest that wild meat sold in urban markets is likely to have travelled some distance from its source after being sold to middlemen and therefore has a higher price (Damania *et al.*, 2005). Although, there is no formal market for wildlife products, a survey by Conservation International Indonesia Program indicates that several bird species and wildlife products such as antler and deer jerky (dried meat) were traded in traditional markets in Manokwari and Jayapura (Suryadi *et al.*, 2004).

From the information obtained from 33 hunters who agreed to record their hunting returns over a period of seven months, some 300 animals were taken from the forests during this period. It was observed that most of these were deer (50%) and wild pig (42%), with native species making up the rest. The authors noted that the native species hunted along the coastal sites of West Papua include Dusky Pademelon *Thylogale brunii*, Grizzled Tree Kangaroo *Dendrolagus inustus*, Spiny Bandicoots *Echymipera kalubu*, Spotted Cuscus *Spilocuscus maculatus*, Northern Cassowary *Casuarius unappendiculatus*,

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Papuan Hornbill *Rhyticeros plicatus* and Pinon Imperial-pigeon *Ducula pinon*. It was apparent that these species are less frequently killed as they are only consumed by local people. It is also important to note that there are religious taboos surrounding wild meat consumption, especially among the Muslim population.

The findings presented here, and other factors such as improved access between villages, increasing population density and the availability of alternative protein sources, suggest that currently there is a shift from subsistence-based to market-based hunting. If the road development programme currently under way in Papua and West Papua provinces reaches 2700 km, as proposed (Anggraeni and Watopa, 2004), there will be two possible impacts: first, the spread of roads into undisturbed forest, resulting in forest fragmentation and easier access for hunters and traders to hunt (Robinson and Bennett, 2000; Milner-Gulland *et al.*, 2003), and subsequently to sell wild meat; this, in turn, will result in an increase in harvest rates and income opportunities (Bennett, 2002; Milner-Gulland *et al.*, 2003). Secondly, opening up some villages along the coast with roads will allow greater access to the nearest town to sell agricultural products and to look for alternative sources of animal protein. Bennett and Rao (2002) explain that roads allow people to make a dietary switch from wild to domestic forms of protein.

It is therefore also important to undertake research into how road access may have an impact on wildlife trade along the coast of Bird's Head Peninsula, and to determine the impact of such trade on wild populations and whether current levels are likely to be unsustainable.

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