

THE PRIMATE PET TRADE IN INDONESIA:

A RURAL PERSPECTIVE



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Plagiarism Statement

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Abstract

As a result of anthropogenic exploitation, over half the world's non-human primate species are at risk of extinction. Habitat destruction and hunting are the major threats to primate populations; however, it is often unclear which poses the greatest problem. The extent of the live-trade in pet primates across Indonesia is largely unknown. Studies to date have focused on trade at markets in urban areas, but other aspects of the primate pet phenomenon, such as extraction and non-commercial acquisition, have been ignored. This study assessed the magnitude of and the attitudes towards a primate pet trade, adopting a rural perspective. 130 interviews with residents and 6 interviews with government officials were conducted on the island of Buton, Southeast Sulawesi, during July and August 2004. There was no strong evidence of a commercial trade; however, the extent of local pet ownership and the level of harvesting are cause for concern. 30% of respondents had owned a primate pet and extrapolations suggested that 184 primates could be kept as pets in Buton at any one time. Trends revealed a substantial increase in primate pet ownership over the last 15 years. Findings indicate that negative attitudes towards wild primates, and the primary reason for the acquisition of primates as pets, stem from the human/primate conflicts induced by human encroachment and the crop-raiding behaviour of macaques. Farmers view eradication of the Buton macaque (*Macaca ochreata brunnescens*) as a favourable option and the current level of law enforcement does not prevent this. Whilst this report provides an overview of the primate pet phenomenon, in-depth, long-term studies are vital.

Key words: Sulawesi; Indonesia; primates; *Macaca*; pet trade.

Contents

<i>List of Tables</i>	1
<i>List of Figures</i>	2
<i>Acknowledgements</i>	3
Introduction	4
Research Aim	4
Background	4
Research Objectives	5
Primates and the Extinction Crisis	6
Primate Values	7
Threats to Primates	10
Habitat Destruction	10
Hunting	11
International Legislation	13
The Indonesian Primate Trade	15
The Primate Pet Phenomenon in Sulawesi	17
Research Methodology	21
Approach	21
Study Area and Timescale	21
Data Collection	23
Data Analysis	27
Limitations	28
History of the Primate Pet Phenomenon	30
Increase in Primate Pet Ownership	30
Perceptions of Change	32

Extent of the Primate Pet Trade	34
Magnitude of Local Primate Pet Trade	34
Buton as Extraction Point	35
Species Involved and Origin	36
Purchasing Costs	38
Primate Pet Ownership	40
Age and Sex Profiles of Macaque Pets	44
Capture Methods	47
Welfare Issues	49
Law Awareness and Enforcement	53
Legislation Awareness within the Community	54
Who is Legally Aware?	55
Legislation Awareness within Government Departments	59
Law Enforcement	62
Local Attitudes	64
Attitudes towards Macaques	64
Macaques as Scapegoats	65
Opinions on the Primate Pet Phenomenon	65
Conclusion	67
References	71
Appendices	77
Appendix 1 – Primate Pet Trade Survey	77
Appendix 2 – Primate Pet Owners Survey	79
Appendix 3 – Officials Survey	82
Appendix 4 – Village Demographic Information	84
Appendix 5 – Behavioural Abnormalities	85

List of Tables

Table 4.1 Sulawesi macaque species.	18
Table 7.1 Average prices for <i>Macaca sp.</i> in Indonesia.	39
Table 7.2 Number of primates discovered in the six villages, the three observed villages and the city of Bau Bau, accompanied by the percentage of respondents from each study village that have owned a primate pet.	41
Table 7.3 Behavioural abnormalities displayed in the video clips of appendix.	50
Table 9.1 Attitudes towards captive primates.	64
Table 9.2 Attitudes towards wild primates.	64

List of Figures

Figure 3.1 Orangutan skull sold on eBay.	13
Figure 5.1 Location of Buton and the six study villages.	22
Figure 5.2 Interviewing via a translator in Mata.	25
Figure 6.1 Change in the number of primates kept as pets over time.	31
Figure 7.1 Internal and external transportation routes of seven primate species; to, from and within Sulawesi.	37
Figure 7.2 Do you or have you ever owned a primate pet?	40
Figure 7.3 Estimated number of primates captured to be kept as pets within each village per year.	42
Figure 7.4 Number of primate pet owners in each employment sector.	43
Figure 7.5 Age of primates when captured.	45
Figure 7.6 Sex of pet primates.	46
Figure 7.7 The age/sex profile of primate pets.	47
Figure 7.8 Capture methods.	48
Figure 7.9 Length of time primates spent in captivity.	51
Figure 7.10 The fate of primate pets.	52
Figure 8.1 Law No.5 1990.	53
Figure 8.2 Example responses to 'What are the laws associated with primates?'	54
Figure 8.3 Are you allowed to buy and sell primates?	54
Figure 8.4 Are you allowed to keep a primate as a pet?	54
Figure 8.5 How perceptions of the legality of trading vary depending on location.	55
Figure 8.6 How knowledge of laws relates to religion.	56
Figure 8.7 Percentage of males and females told about the law.	57
Figure 8.8 How knowledge of the law relates to employment.	58
Figure 8.9 Percentage of residents with knowledge of the law.	58
Figure 8.10 Organisational structure of The Ministry of Forestry.	60
Figure 9.1 How opinion about trading is related to employment.	66

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Introduction

Research Aim

This report presents the findings of research conducted during July and August 2004 on the island of Buton in Southeast Sulawesi, Indonesia. The aim of this research is to assess the magnitude of and the attitudes towards a primate pet trade in Buton.

Background

Non-human primates are our closest evolutionary relatives, yet despite their intelligence, opportunism and adaptability, many species are unable to cope with the rate of change currently being induced by the escalating human population. In spite of our intertwined evolutionary contexts, social and economic human realities have left many non-human primates with a precarious future. The threat of extinction that looms over half the world's non-human primate species should be of concern to us all.

As primate field studies have developed over the last three decades, comprehensive knowledge of the behavioural ecology of many species has accumulated. But for how long can these conventional primatological studies continue, when the research subjects are often dramatically declining in numbers? Although detailed natural histories are of value, it is time to channel academic resources into researching the issues that are adversely affecting primates today.

As human resource bases diminish, the tropical forests of the world are being destroyed for population subsistence and short-term economic gain. Besides the issue of shrinking habitats, the existence prospects of non-human primate species are exacerbated by the uncontrolled harvesting of individuals. Many

species encounter additional pressures due to the attractiveness of their infants as pets, yet this issue has received minimal attention by academics to date.

The extent of the live-trade in primates across Indonesia is largely unknown, but the research that has been conducted has reported shocking results suggesting that an illegal trade of unprecedented proportions is rampant in the areas previously studied. However, all previous studies have focused on the main centres of trade, particularly bird markets, in and around major cities. Yet this only represents one aspect of the primate pet trade; the quantifiable, large scale, commercial aspect. As a general rule, for every monkey that reaches a buyer, many more die during capture, in transit and whilst at markets. There are even more monkeys that end their journey at different points along the chain. Many never leave their capture location but are kept as pets by the people who caught them. These monkeys too are entwined in the primate pet phenomenon yet are missing from data collected by researchers to date.

This investigation looks at the primate pet trade from a local perspective, using a predominately rural location as the study site. The pet phenomenon in Buton has never been documented before, so this research aims to give an overview of the present situation; assessing the magnitude and exploring the issue from a social perspective.

Research Objectives

- 1) To gain an insight into the history of the primate pet phenomenon in Buton.
- 2) To determine the extent of the trade in primates as pets in Buton.
- 3) To assess the level of legislation awareness and law enforcement.
- 4) To gather an understanding of attitudes towards primates and reasons why they make desirable pets.

Primates and the Extinction Crisis

Over recent decades, broad concern has arisen in both academic literature and the media about the future of the world's biodiversity. Around the globe, biological communities that took millions of years to evolve are being drastically altered, with regard to their structure and composition, by the actions of a single species, *Homo sapiens* (Cowlshaw and Dunbar, 2000; Primack, 2000). For hundreds of years, human activities have been directly or indirectly destroying the world's wildlife and natural habitats. To many it is becoming apparent that we may soon witness one of the greatest waves of extinction ever to have occurred (Burton, 2000; Willock, 1991).

The extinction of species is a natural process and in the past, the loss of existing species was eventually balanced or exceeded by the evolution of new species. However, the current rate of species loss is believed to be 1,000 times greater than at any other time during the last 100,000 years (Campbell and Reece, 2002). This phase of mass extinction is unique in the planet's history; never before has one species been responsible for the extinction of so many others (Cowlshaw and Dunbar, 2000; Dunbar and Barrett, 2000; Primack, 2000).

Our closest relatives, the non-human primates¹, have not escaped anthropogenic exploitation. In fact primates are more widely threatened with extinction than most mammalian orders (Cowlshaw and Clutton-Brock, 2001). A 1996 estimate by the Primate Specialist Group of the Species Survival Commission placed half of the world's 250 primate species in serious need of conservation concern (Chapman and Peres, 2001). Furthermore, the second edition of a report released by Conservation International (CI) and the IUCN entitled 'The World's Top 25 Most Endangered Primates' documented 195 of the world's 638 species and subspecies of primate as endangered or critically

¹ On a terminological note, all non-human primates will here on be referred to as 'primates'.

endangered (IUCN, 2002). Representing a 63% increase in the number of primate species and subspecies threatened with extinction since the first edition of the report was published in 2000 (Viegas, 2002).

Primate Values

Primates have a diverse range of values that we cannot afford to lose. Ecologically, primates play an important role in pollination and seed dispersal in many of the world's tropical forests. In the Kibale Forest of Uganda, for example, primates disperse the seeds of more than one-third of all forest trees (Cowlshaw and Clutton-Brock, 2001). As primates disappear from forests, the viability of forest communities will be threatened. Consequently, climatic regulation and water catchments will be affected and resources, on which human populations depend, such as food, wood and medicine, will deplete (Cowlshaw and Dunbar, 2000).

Primack (2000) developed a method of valuing biological diversity in economic terms by adapting the previous work of McNeely *et al.* (1990) and Barbier *et al.* (1994). The approach involves categorising values in terms of either direct or indirect economic gain depending on whether harvesting is required. Hunted and captured primates have a direct economic value regardless of whether they are consumed locally as meat or sold on national and international markets.

The subsistence hunting of primates for protein or other personal use may not involve the actual exchange of money, but a consumptive use value can still be assigned by considering how much people would have to pay to buy equivalent products if the local sources were no longer available. A productive use value is assigned to primates sold commercially (Primack, 2000). Such values increase depending on the rarity of the primate being traded, encouraging commercial hunters to capture endangered species of primate such as orangutan (*Pongo sp.*) and gorilla (*Gorilla sp.*).

Fortunately, not all economic gains involve the capture of primate species. Significant indirect economic values can be placed on certain primate species due to ecotourism. Ecotourism is a rapidly growing industry, which Primack (2000) estimated involved 200 million people and earned billions of dollars per year worldwide. One of the most famous examples of how ecotourism has substantially aided the conservation of a species is in the case of the mountain gorilla (*Gorilla beringei beringei*).

By charging high visitor fees to a relatively small number of tourists, Rwanda developed a gorilla tourism industry that became one of the country's largest foreign income earners. By 1984, gorilla tourism was earning US \$200/ha compared with the US \$15/ha cattle grazing would earn (McNeilage, 1996). Between 1978 and 1988, the Parc National des Volcans was transformed from a forested area with no tourism, thousands of cattle and hundreds of people encroaching and exploiting it, to an area with a well-developed tourist programme, improved protection with well trained and equipped guards and most importantly, an increasing gorilla population (Harcourt, 2001). Ecotourism is not without problems, as the pressure of too many visitors can often destroy the pristine environments they come to see (Burton, 2000). Yet there is no doubt that without tourism, the mountain gorilla's situation would have been somewhat bleaker than it is today.

A second, indirect economic value of primates is surprisingly due to the closeness of primates to ourselves, both in terms of physical appearance and in terms of social and cognitive skills. Many people believe that we have an ethical obligation to treat species with such highly developed intelligence with more than the average respect (Cowlshaw and Dunbar, 2000). As a result, people throughout the world contribute money to conservation organisations that assist local communities in the protection of particular primate species by giving them financial or developmental incentives.

Environmental ethics, a new discipline within philosophy, articulates the ethical value of the natural world and an increasing number of people are beginning to realise the importance of preserving all species regardless of their economic value (Primack, 2000). Nevertheless, at present, despite efforts to change opinions and broaden conservation strategies, people continue to treat the environment in a short-sighted, wasteful manner. It is the immediate, direct economic values placed upon primates that continue to seal their fate.

Threats to Primates

The two major threats to primate populations identified widely in the literature are habitat destruction and hunting² (Bearder, 1991; Chapman and Peres, 2001; Cowlshaw and Clutton-Brock, 2001; Cowlshaw and Dunbar, 2000; Preston-Mafham and Preston-Mafham, 1992).

Habitat Destruction

Habitat loss is widely accepted as the greatest single threat to the continued survival of virtually all primate species.

(Mittermeier and Cheney, 1987)

As the economic development of the world's tropical forests continues unabated, species are displaced or isolated due to the modification, fragmentation and ultimate destruction of their habitat (Johns, 1991). Habitat disturbance is caused primarily by agricultural and forestry activities; the most commercial often encouraged by governments under increasing pressure from external debts (Chapman and Peres, 2001).

The effects both logging and agriculture have on tropical forests depends on the intensity of such practices and the size of the areas disturbed. Whilst selective logging causes forest degradation, clear-felling has much more devastating effects eventually leading to deforestation (Grainger, 1993). Shifting cultivation, the traditional farming practice of most tropical regions, mimicked the dynamic nature of forests and was a fairly sustainable form of agriculture when the populations, supported by such farms, were small. Shifting cultivation is now believed to support 500 million people worldwide. To enable this, shifting cultivators have been forced to use the land more intensively by farming it for

² In academic literature, the term 'hunting' is used to encompass both the killing and capture of wild primates for a variety of purposes.

longer and giving it less time to recover (Kellman and Tackaberry, 1997). However, by far the most destructive agricultural practices used in the tropics are permanent, commercial agriculture and cattle ranching, both of which heavily exploit the land using intensive farming methods and completely displace wildlife from large areas (Grainger, 1993).

Primates are adaptable, as many species have shown, by successfully coexisting with people. However, the extent to which primates can cope with habitat modification and fragmentation depends on the continued existence of particular food trees and the connectivity of fragments, as well as the particular primate species physiology (Cowlshaw and Clutton-Brock, 2001). Habitat disturbance in the form of logging unfortunately leads to primates' second major threat: hunting. As roads cut deep into the forest to enable logs to be removed, allow easy access for hunters.

Hunting

Primate population declines are typically pre-empted by hunting and logging activity well before the coup de grâce of deforestation is delivered.
(Chapman and Peres, 2001)

Although many academics, such as Mittermeier (1987) and Rosenbaum *et al.* (1998), argue that habitat destruction is the main threat to primates around the world, it is not the consensus opinion. Chapman and Peres (2001), quoted above, argued that hunting has a profound impact on primate populations and Cowlshaw and Clutton-Brock (2001) proposed that hunting was capable of driving populations to extinction even in undisturbed habitat.

Hunting primates is not a new phenomenon. Hominines have been hunting their primate relatives and driving other species to extinction for thousands of years. Shipman *et al.* (1981) described how evidence at a fossil site in Kenya revealed

that the now extinct giant gelada baboon (*Theropithecus oswaldi*) had been extensively hunted by *Homo erectus* between 400,000 and 700,000 years ago.

The main reason primates were hunted in the past and, to a lesser extent, why primates are hunted today, is the same reason why hundreds of other large bodied mammals have been hunted to near extinction – for their meat. Hunting for local consumption does not necessarily present a major problem provided that the human population is small and large areas of undisturbed habitat are available (Mittermeier, 1987). It is when market forces come into play that hunting for meat becomes unsustainable.

In Africa, the meat of wild animals has long been a part of the staple diet of forest dwelling people. In 62 countries worldwide, at least 20 per cent of the animal protein in rural diets comes from wild sources (Ape Alliance, 2001). However, as the population of Africa is becoming urbanised the demand for this traditional item is being met, often illegally, by commercial hunters and traders. Not only is large-scale commercial hunting a threat to species' survival, it also impacts profoundly on rural livelihoods. Known as the bushmeat trade, the trade in primate meat in Africa has been reported as the greatest threat facing chimpanzees (*Pan troglodytes*), bonobos (*Pan paniscus*) and gorillas (*Gorilla sp.*), which are being killed at a rate of approximately 5,000 a year (Ape Alliance, 1998; Hook, 2000).

Aside from their meat, primates are killed for other reasons. Asian primates are often hunted as 'medicinal' ingredients for Chinese traditional medicine, posing a severe threat to the select species involved (Mittermeier, 1987). Primate body parts are commonly sold as souvenirs, ornaments or clothing in tropical countries. Preston-Mafham and Preston-Mafham (1992) reported that some items, such as chimpanzee skulls, were fetching up to US \$700, providing great incentives for hunters to slaughter primates for their skulls alone. Alarming, since the Internet era began, artefacts made from endangered species have

become regular lots on eBay. For example, in January 2001, the decorated orangutan skull shown in figure 3.1 was bought online for US \$750 (IPPL, 2001).



Figure 3.1 Orangutan skull sold on eBay (IPPL, 2001).

Living primates are also removed from the wild for numerous reasons. An international trade in primates as zoo and circus exhibits still exists, as does a trade in primates for use in biomedical research despite contentious ethical debates. Since India banned exportation of rhesus macaques (*Macaca mulatta*) in the 1970s, long-tailed macaques (*Macaca fascicularis*) supplied from Indonesia and the Philippines have dominated the trade (Cowlshaw and Dunbar, 2000). Despite Indonesia banning the exportation of wild-caught primates in 1994, the British Union for the Abolition of Vivisection (BUAV) reported that shipments from Indonesia to the USA included monkeys as old as 17 years. Since captive breeding colonies were not established until the 1990s, there is reason to be concerned about the legitimacy of captive-bred status (BUAV, 1997).

International Legislation

During the 1950s, escalating international trade in live animals and their parts invoked concern across Europe and America regarding species survival (Huxley, 2000). Focused primarily on charismatic megafauna, momentum began

for international restrictions on trade to be introduced. The Convention on International Trade in Endangered Species (CITES) was eventually ratified in 1975 and now more than 160 countries have agreed to abide by it. CITES does not ban international trade, it monitors and restricts it to varying degrees depending on a species' conservation status and classification into one of three appendices (WWF, 2004).

While CITES is often heralded a success, it also has its critics. Chapman and Peres (2001) mention how the international trade in primates has been dramatically reduced since its implementation. Yet other academics claim it to be a farce, as an illegal trade in endangered species of unprecedented proportion continues to flourish, surpassed in scale only by the illegal arms and drugs trades (Bowles, 1996). Huxley (2000) claims that CITES is too often thought of as an end in itself, rather than a means to an end; the successful 'saving' of a species being its inclusion in Appendix 1, which bans international commercial trade. Endangered species like gibbons (*Hylobatidae sp.*) are listed under Appendix 1, but as IPPL (2003) have pointed out, CITES often proves to be an ineffective means of protection, since gibbons frequently show up at fashionable, yet illegal, 'pet primate parties' in the United States.

As suggested by Hemley (1994), the treaty's weakness lies in its implementation and enforcement. The ability and commitment to enforce CITES varies widely amongst countries. Whilst law and legislation is essential in the protection of endangered species, it has been noted that if protection and management efforts in the field are ineffective, CITES can do little more than monitor the demise of wildlife populations (Huxley, 2000; O'Connell, 1996). However, claimed by Chapman and Peres (2001) to be a greater threat to primates is the national trade over which CITES has no control. Controlling domestic trade is the sole responsibility of a country's national government.

The Indonesian Primate Trade

Stretching over 5200 km between the Asian mainland and Australia, the Indonesian archipelago comprises more than 17,000 islands and is one of the most biologically diverse countries in the world (Rough Guide, 2005). Almost 300,000 animal species inhabit Indonesia, approximately 17% of the entire world's total on just 1.3% of the world's land. This figure includes 515 mammalian species of which 36 are primates (ProFauna Indonesia, 2004). However, Indonesia also has one of the longest lists of endangered species with the IUCN Red List of Threatened Species identifying 128 endangered mammals alone and many more birds, reptiles, fish and invertebrates (IUCN, 2003). Although many factors have contributed to the decline of species in Indonesia, the wildlife trade is of particular concern.

The first academic to highlight the illegal trade in protected primates within Indonesia was MacKinnon (1986). In an overview of Indonesian primate population densities, threats and conservation requirements, MacKinnon mentioned that monkeys are common pets and estimated there were 100 macaque pets in the Dumoga valley of North Sulawesi alone. MacKinnon's focus was on the distribution of Indonesian primates and areas of their original, remaining and protected habitat, so the primate pet trade only received a brief mention in the report. However, MacKinnon explicitly made clear the need for further research and conservation action. To date, her study remains the most comprehensive overview of the conservation status of Indonesian primates and their population densities.

Ten years elapsed before Theile (1998) became the first to research the domestic primate trade in Indonesia. During 1996, 27 surveys at 12 wildlife markets around Java and Bali were conducted in an attempt to present preliminary information on the scale and scope of the local Indonesian trade.

Theile recorded 12 species being traded, including 8 protected species. Details in the published abstract are brief, the sole purpose being to emphasise the alarming proportions of the trade, the detrimental effect it has on primate populations and to make a plea for further research. Theile stressed that the impact of the trade could not be quantified until trade volumes were comprehensively evaluated.

ProFauna Indonesia (formally known as KSBK) is the only animal protection NGO in Indonesia, controlled by volunteers and funded by donations. It was established in 1994 to investigate the trade in wild animals, rescue and rehabilitate confiscated animals, and campaign for improved wild animal protection (ProFauna Indonesia, 2004). Supported by the International Primate Protection League (IPPL), ProFauna Indonesia has been the first to conduct extensive investigations around Indonesia focusing specifically on the trade in primates. To date, six investigations have been conducted concentrating on the trade in Java, Bali, Sumatra and Sulawesi. In each case, shocking results have been reported suggesting that the trade in primates is much greater than anticipated (KSBK, 1998, 1999a, 1999b, 1999c, 2000; ProFauna Indonesia, 2003).

ProFauna Indonesia investigations involve covert participant observation, with researchers posing as potential buyers in order to make undercover observations at the 'bird' markets and shopping malls, in the major cities of Indonesia, that sell primates. Despite ethical issues concerning deception, ProFauna Indonesia has collected the most detailed data available on the illegal trade in primates at markets and malls in urban areas. Without the use of covert observation, such data could not have been collected because it is doubtful that traders would agree to be interviewed about their illegal 'goods'. Furthermore, ProFauna Indonesia is actively campaigning to raise public awareness of the primate trade by informing people about the importance of protecting primates through their 'Primate Freedom Tour' and becoming directly involved in 'bird'

market raids alongside the KSDA (Authority for the Conservation of Natural Resources) and police officers (Nursahid, 2001, 2002).

The most recent investigation observing the trade in primates at wildlife markets around Java and Sumatra was conducted by Webber (2002) as an MSc thesis. Again, focusing on the trade in urban areas, a covert participant observation approach was adopted. Building on the work of ProFauna Indonesia, Webber conducted follow up surveys of markets previously investigated to further assess the extent of the primate trade. While reporting an increase in the level of primate trade, Webber also gave consideration to the standard of primate welfare at wildlife markets, an issue only briefly referred to previously by ProFauna Indonesia. A quarter of primates observed were suffering from one or more physical or behavioural abnormalities. Webber stressed the need for welfare legislation to be introduced in order to regulate cage hygiene and living space requirements.

The Primate Pet Phenomenon in Sulawesi

As Indonesia's fourth largest island with an area of 159,000 km², Sulawesi (longitude 118°-126°E, latitude 2°N-6°S) is situated in the unique biogeographical zone of Wallacea where plants and animals from Asia and Australia once mixed (Kinnaird, 1995). Due to a complex geological history, the Wallacea region has the third highest level of mammalian endemism in the world (CI, 2004). Of Sulawesi's 127 indigenous mammal species, 98% (excluding bats due to ease of dispersal) are endemic (Whitten *et al.*, 1987).

Like tropical regions throughout the world, Sulawesi has seen a marked decrease in natural forest cover over recent years. In a shocking report, Holmes (2000) estimated that between 1985 and 1997 Sulawesi lost 20% of its natural forest cover, not taking into account the quality and biodiversity value of the remaining forest. Lowland forest, the most valuable in terms of biodiversity

conservation has been particularly affected. Holmes stated that lowland dry forest is ‘essentially defunct as a viable resource in Sulawesi’.

Within Sulawesi, range fragmentation has generated seven multi-taxon areas of genetic endemism in which seven morphologically distinct species of macaque have evolved (Evans *et al.*, 2003; Fooden, 1969). Macaques are taxonomically classified as Old World Monkeys (family: Cercopithecidae), belonging to the sub-family Cercopithecinae and genus *Macaca* (Rowe, 1996).

Species	Common Name	Distribution	Status
<i>Macaca nigra</i>	Crested black	Northeast Sulawesi	Endangered
<i>Macaca nigrescens</i>	Dumoga-bone	North Sulawesi	Conservation Dependent
<i>Macaca hecki</i>	Heck’s	Northwest Sulawesi	Near Threatened
<i>Macaca tonkeana</i>	Tonkean	Central Sulawesi	Near Threatened
<i>Macaca maura</i>	Moor	Southwest Sulawesi	Endangered
<i>Macaca ochreata</i>	Booted	Southeast Sulawesi	Data Deficient
<i>Macaca ochreata brunnescens</i>	Buton	Buton and Muna	Vulnerable

Table 4.1 Sulawesi macaque species (Fooden, 1969; IUCN, 2004; Rowe, 1996).

The taxonomic status of the Sulawesi macaques is subject to much debate (Hoelzer and Melnick, 1996). It is widely questioned as to whether *Macaca brunnescens* should be classified as a subspecies of *Macaca ochreata*. Academics are widely divided on this issue, but for this investigation the Buton macaque will be classified as Groves (1980) proposed and how it is classified in the IUCN Red List of Threatened Species, as *Macaca ochreata brunnescens* (IUCN, 2004). Details of the seven Sulawesi macaques are given in table 4.1, including their conservation status. All Sulawesi macaques are protected by law under two decrees: No. 421/1970 and No. 301/1990 (Irvan, 2004). Furthermore,

all flora and fauna within designated nature reserves are assigned protected status.

The primate pet trade in Sulawesi has received very little academic attention. Rosenbaum *et al.*, (1998) attributed the continuing decline of *Macaca nigra* populations at the edge of reserves to excessive hunting and trapping for meat and pets. This claim was supported using the findings of Lee (1997), who noted that macaque populations were twice as high in central areas than in peripheral forest areas subject to hunting pressure. Whilst these studies demonstrate the potential impact the removal of macaques can have on population densities, neither study investigated the actual extent of the phenomenon.

KSBK (1999b) conducted the first investigation to assess the extent of the primate pet trade in Sulawesi. Undercover researchers spent from February to June visiting the bird markets of the Northern, Central and Southern provinces. At the ten locations studied, several primate species were discovered being offered for sale, including *Macaca nigra*, *Macaca tonkeana* and tarsiers (*Tarsius sp.*); all native Sulawesi species. However, species other than those native to Sulawesi were also found to be traded, especially in the Southern Sulawesi province, including slow loris (*Nycticebus coucang*), *Macaca fascicularis* and an agile gibbon (*Hylobates agilis*).

There have been no other extensive surveys of Sulawesi bird markets since KSBK published their report. However, the primate pet phenomenon in Sulawesi has qualified for a mention in several academic papers. Firstly, Priston (2001), whilst conducting an assessment of the crop-damage caused by *Macaca ochreata brunnescens* in Buton for her BA dissertation, noted that a primate trade was apparent on the island. Irvan (2004) even reported that the sale of monkeys in Central Sulawesi appeared widespread, despite a ban by the government.

In a recent study, Jones-Engel *et al.* (2004) investigated the possibility of zoonotic and anthroozoonotic disease transmission between humans and primate pets. The entire study was conducted in Sulawesi, where 88 pet macaques were discovered during two field seasons in the northern, east-central and southern peninsulas. A pet primate census was not deliberately conducted; pet primates were simply located to obtain faecal samples by making inquiries at villages along main roads. However, inadvertently, valuable data on pet age, sex and species was collected. Jones-Engel *et al.* discovered six species of Sulawesi macaque (*M. nigra*, *M. nigrescens*, *M. hecki*, *M. tonkeana*, *M. maura* and *M. ochreata*), as well as two non-native species (*M. fascicularis* and *M. nemestrina*). The report also claimed sixteen hybrid individuals were discovered.

Undoubtedly, something has to be done in Indonesia to curb the trade in primates as pets, especially the trade in species known to be in danger of extinction. Research into the primate pet trade makes people more aware of the problem and assists in the prioritisation of conservation efforts; yet to date research has been minimal. Although the last decade has seen an increase in knowledge about the primate pet phenomenon in Indonesia, much remains unknown, many areas remain uninvestigated and the impact of the trade is still subject to speculation.

What was apparent in the literature was a lack of agreement as to which problem poses the greatest threat to primates. Whilst to some extent, this depends on the particular primate species, the general lack of knowledge about hunting and the primate trade makes assumptions unreliable. Only when the true nature of both the major threats to primates have been fully researched and documented can resources be channelled in the appropriate directions to challenge extinction head on.

Research Methodology

Approach

Previous investigations researching the primate pet trade have adopted case study approaches, whereby the primate pet phenomenon is explored within its real life context (Glatthorn, 1998). A case study approach has also been adopted during this investigation in order to explore, describe and explain the phenomenon within the specified study area. Due to the spatial scale of the issue and the general lack of information about the problem in most areas of Indonesia, a case study approach using a realist philosophical stance and a mixture of qualitative and quantitative techniques proved the most appropriate means of assessing the situation. The general approach has been to use extensive, quantitative research to produce descriptive generalisations of the phenomenon, whilst using intensive, qualitative research to produce causal explanations (Kitchin and Tate, 2000).

Study Area and Timescale

Data was collected on the island of Buton over a four-week period during July and August 2004 (Figure 5.1). Buton (also known as Butung) is situated in the Banda Sea, southeast of mainland Sulawesi, Indonesia (longitude 122°5'-123°3'E, latitude 4°3'-5°7'S). It is approximately 4556 sq km in size and is still extensively covered in lowland monsoon forest (Collins *et al.*, 1991; MSN Encarta, 2005).

Buton's population of approximately 439,000 inhabit 165 villages across the island and consists of Butonese Muslims (89%) and transmigrants from Bali, Java and Ambon (Priston, 2001). Asphalt mining, farming, fishing and forestry are the main occupations in Buton, with asphalt and teak being the islands main export products. However, the majority of the population continue to engage in

subsistence agriculture. The administrative and commercial centre of Buton is Bau Bau, situated on the southwest coast.



Figure 5.1 Location of Buton and the six study villages. Adapted from Lonely Planet (2005).

Data was gathered in six villages – Wakangka, Lingkungan Restubuana, Watumotobe, Wawoncusu, Suandala and Mata. These villages are believed to be representative of the central Buton area because they represent both native Muslim and transmigrant Hindu communities. An additional three villages were visited for observational purposes. Still within the central Buton area, these

villages were – Labundo-bundo, Lawele and Toruku. Choice of location was dictated somewhat by logistical constraints and the villages selected had to be accessible and within a three hour drive of base.

Data Collection

A triangulated approach using a mixed qualitative and quantitative interview technique accompanied by straight, covert observation was used to acquire the necessary data for this investigation.

Previous researchers investigating the Indonesian primate pet trade have adopted a strictly covert approach, posing as either tourists (Webber, 2002) or as prospective buyers (KSBK, 1998, 1999a, 1999b, 2000) at wildlife markets in urban areas. Because these previous investigations have focused solely on determining the volume of trade in urban areas and identifying the primate species involved, this study adopts a local rural perspective. The aim has been not only to gather quantitative data about the primate pets discovered but also to uncover the knowledge and attitudes of their owners and the communities as a whole.

When studying the primate pet trade in Mexico City, Duarte-Quiroga and Estrada (2003) used an ethnographic approach. 179 owners of primate pets were located during the Mexican study and treated as informants rather than interviewees. Participant observation allowed close relationships to develop and trust to be gained, thus revealing a rich assortment of information on how primate pets are obtained, why people own primates, the uses such primates have, maintenance problems and the primates' ultimate fate. An ethnographic approach was considered for use during my investigation, however, due to time constraints and obvious cultural and language differences, such an approach was deemed inappropriate.

Instead, data generation through a series of interviews was thought to be a more appropriate way of acquiring information on the primate pet phenomenon as well as on the attitudes, opinions and awareness of respondents. Two main surveys were conducted whilst in Indonesia, one aimed specifically at primate pet owners and the other aimed at society in general, as well as six interviews with government officials and informal conversations with some primate pet owners.

Before interviewing commenced, villages were selected and the leading figures in the village political structure were contacted. This was primarily for two reasons, firstly to gain permission from the Headman to interview villagers and secondly to break down potential barriers to communication in advance. Due to the illegality of keeping and trading primates and to my conspicuous appearance amongst the Indonesians, attempting to interview villagers without apparent support from the village council could have been met with hesitation. Instead, the Headman of each village provided me with a local guide who was familiar with the villagers and could explain the purpose of my research to them. This technique, recommended by Priston (personal communication), proved very successful.

Interviewees were selected using a two-stage cluster sample. Firstly, interviewees were purposely drawn from the six villages mentioned in order to concentrate respondents in discrete geographical areas. Secondly, as far as possible, the sample population of these villages was equally divided between male and female adults (aged 16 years and over). Although a systematic random sample with a variable sampling fraction would have been desirable, adequate village statistics were unavailable. Therefore a quota sample was used, whereby households were selected from around each village and one individual from each household was interviewed (Parfitt, 1997). Snowballing was also used within each village to locate primate pets (Valentine, 1997).

Simple, direct and specific questions were asked of each respondent via a translator (Figure 5.2). A graduate from Universitas Negeri Makassar in Sulawesi, the translator was fluent in Bahasa Indonesian (the official Indonesian language) and also Bahasa Wolio (a local language). To ensure accuracy of translation, questions were discussed before interviewing commenced to make sure that the nature of the questions and the information required was understood. A recording device was not used because it was inappropriate given the cultural context; pre-prepared recording sheets were used instead.



Figure 5.2 Interviewing via a translator in Mata.

Approximately three days were spent conducting twenty interviews in each village. An additional ten interviews were conducted in the districts chief village (Watumotobe) to reflect its notably larger population, resulting in 130 interviews being conducted in total. A structured questionnaire containing 32 questions was administered to each respondent beginning with quantitative demographic questions followed by a series of structured open-ended questions, allowing respondents to reveal their knowledge of the primate pet phenomenon and express their views. Each interview took between 20 – 40 minutes to complete (see appendix 1 for a copy of the questionnaire).

Before each interview commenced, respondents were asked whether they owned or had ever owned a primate pet. Those who answered 'yes' were asked a series of questions designed specifically for primate owners (appendix 2). This questionnaire included the main survey and also contained an additional section. This section encompassed a series of closed, quantitative questions about the primate pet such as its age, species and origin, followed by a less structured, guided approach designed to gain as much information on the trade in primates as possible. Interviews with primate pet owners took between 30 – 90 minutes depending on how many primates the individual had owned and how much they knew about the primate pet trade. During both types of interview, the individual respondent determined the shape and structure of the interview with interesting points being followed up with further questions.

Interviews with six officials from The Ministry of Forestry were also conducted during the data collection period. These interviews lasted between 90 – 120 minutes and a guided approach was used based on 25 potential questions (appendix 3). Initial questions and follow-up questions were asked, if and when appropriate, depending on the individual's field of knowledge and experience. The main theme throughout official interviews was legislation and law enforcement, as information on the degree of awareness and level of law enforcement was required.

Finally, two days were spent in Bau Bau conducting informal conversations with primate pet owners. Due to bureaucratic problems, no formal questioning took place, instead data on species, origin, age, cost and condition was collected by asking the owner these basic questions or observing the captive animals. As with all observations of primate pets, photographic and video evidence was recorded so that further information could be gleaned after the interaction. To enable accurate identification of all pet species, a comprehensive identification sheet was compiled and laminated prior to departure from the UK. The relative ages of pets were estimated using information provided by the owner and by

assessing the size and behaviour of the individual. Pets were assigned to an age category using guidelines adapted from the classifications established by Ménard and Vallet (1996), Priston (personal communication) and Rowe (1996): infants (< 12 months), juveniles (12 – 24 months), sub-adults (24 – 48 months) and adults (> 48 months).

Data Analysis

Quantitative data from the main survey of villagers and primate pet owners was categorised and input as nominal data into two SPSS data matrices. Basic frequencies were calculated for all categorical data and appropriate charts produced. Further analysis was conducted using cross-tabulations and clustered bar graphs in an attempt to identify any confounding variables. Significance tests were performed using the non-parametric test chi-squared, to identify the probability that such relationships could have occurred by chance (Kitchin and Tate, 2000; Williams, 2003). Continuous data, such as price, was input into SPSS, descriptive statistics calculated and exploratory boxplots constructed (Fotheringham, 1997).

Demographic profiles for each study village were constructed to enable explanation of the different responses received within each village. The key demographic differences are outlined in appendix 4. Due to the assortment of occupations, respondents were clustered into the three classic employment sectors: primary (e.g. farmers), secondary (e.g. craftsmen) and tertiary (e.g. teachers). This was deemed the most appropriate way of making simplistic distinctions between occupations in this developing area.

Qualitative responses were analysed using an approach suggested by Dey (1993). Initially responses were transcribed and thematically grouped depending on the question answered and the research issue, and then within each group the data was broken up into categories and particularly unusual responses highlighted. Connections were made between classes of qualitative data and

quantitative variables to search for recurring patterns and common characteristics. Some qualitative categories were eventually converted into numeric format and input into SPSS. The main purpose of conducting qualitative analysis was to explain results of the quantitative analysis and to compare and contrast opinions of primates and the pet phenomenon. However, due to the rich, detailed, multi-layered nature of qualitative research, respondent anecdotes often offered substantial insight without requiring additional analysis.

Limitations

Due to the limited time spent in Buton a pilot study was not conducted. This meant that during the research, occasional modifications to the questionnaires had to be made when particular questions were not being understood correctly or when it was felt additional information was required. Some minor translation problems were also encountered initially due to misunderstanding of the nature of the question by the translator. Using a translator is always problematic because information will inevitably be lost in translation and it is not quite so easy to gauge how answers are being expressed.

Despite the initial intention of conducting interviews privately, this was virtually impossible in reality because my presence in the villages attracted too much attention. However, audiences usually remained quiet and all prompted answers have been disregarded. Another possible concern, as mentioned by Jones-Engel *et al.* (2003), who has also interviewed in Sulawesi, is that respondents could have tried to guess what the 'right' answer to a particular question was in order to please, or on the other hand exaggerate an answer in order to shock. The vast majority of respondents seemed genuine when answering questions but it is always a possibility for bias.

Finally, observer bias may have unintentionally affected the results. It is well documented that a researchers own identity, background and beliefs inadvertently have a role in the creation of data and data analysis. However,

throughout this investigation, I have endeavoured to maintain an objective outlook so as not to bias respondent answers and the subsequent interpretation (Bell, 1999; Denscombe, 1998).

History of the Primate Pet Phenomenon

The keeping of primates as pets is not a new phenomenon; it is a common tradition among many cultural groups throughout the tropical world (Chapman and Peres, 2001). The hunter-gatherer Guajá Indians of Brazil have traditionally relied on monkeys as a key seasonal dietary resource. However, monkeys are not only essential for the Guajá Indians material existence; they are also culturally assigned symbolic and social importance. When adult mothers are killed for food, the young orphaned monkeys are kept as pets and treated like dependent children by the women of the village. The infant monkeys stay in constant physical contact with their surrogate mothers and are played with, sung to, bathed and even breast-fed, while serving to enhance the culturally valued image of the 'fertile female' (Cormier, 2002). While Indonesians view and treat pet primates very differently, the keeping of primates as pets is not simply a current phase; however, it is a phenomenon that appears to be on the increase.

Increase in Primate Pet Ownership

When interviews with former primate pet owners were analysed, a trend in the data emerged suggesting that the keeping of primates as pets has increased over the last 45 years. Despite current primate pet owners being excluded from this analysis due to the snowballing nature of their identification, figure 6.1 still portrays a sharp increase in ownership particularly since 1990. Although significant ($\chi^2 = 45.600$, $df = 8$, $p = 0.000$), this pattern must be viewed with caution as it is based solely on human memory. However, owning a pet monkey is something unlikely to be forgotten and although year estimations may have a high margin of error, the observed trend is evidence enough to suggest that the keeping of primates as pets in Buton is increasing as it has been reported so elsewhere in Indonesia (KSBK, 1999a; Webber, 2002).

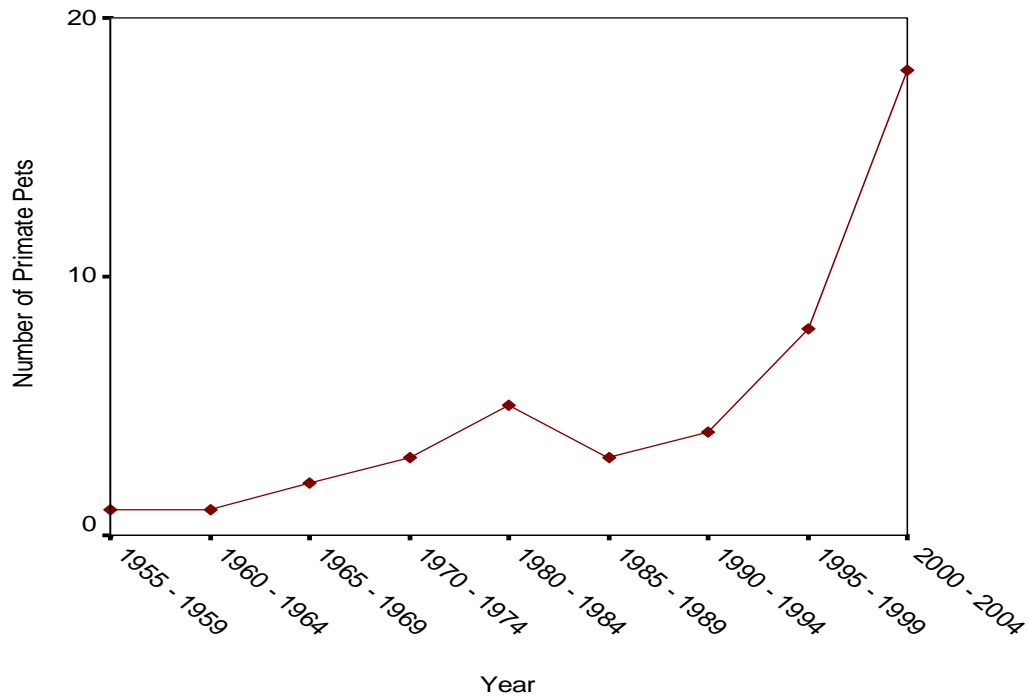


Figure 6.1 Change in the number of primates kept as pets over time.

KSBK (1999a) attributed the increasing trade in primates at bird markets, supermarkets and shopping malls between 1996 and 1999 to economic crisis in Indonesia, a notion later rejected by Webber (2002) due to perceived economic stability during her data collection period. Whilst economic instability causing high unemployment and inflated prices can highlight the alleged benefits from trading in protected species, from a rural perspective other factors are likely to be of more direct concern.

The increase in primate pet ownership detected during this study is likely to be associated with increased contact and conflict between humans and primates. The notably increasing human population in Indonesia is leading to intensified competition for land resources between humans and wildlife. More people to feed and accommodate leads to further encroachment of the forests primates inhabit, as a result primates frequently find themselves in territorial proximity to human spaces (Feistner and Hill, 2004). Wild animals often adapt to, and even

benefit from, humanised environments. In accordance with optimal foraging theory, wild animals feed in a manner that maximizes nutrient intake in the minimum possible time and anthropogenic sites, such as farms, offer ideal foraging opportunities (Knight, 2000; Sukumar, 1994).

However, crop foraging by primates is resented by farmers whose livelihoods depend on their farms and the crop-raiders are considered pests. Competition should in essence work both ways; as wild animals take human-claimed food and territories, humans take the food and territories of wild animals. Conflict resolution is almost always at the expense of the wild animal. When primates become crop-raiders, humans incur losses because of damaged resources but, because of the supposed 'unnatural' presence of primates in human space, they incur the greatest losses by being chased, trapped and killed (Knight, 2000).

In the majority of cases, primate pets in Buton are a by-product of farm protection. Interviews revealed 60% of pets had been caught in farms. The more forest that is cleared in Buton and converted into farmland, the more often primates will enter these farms whilst foraging, resulting in more monkeys being caught and ending up as household pets.

Perceptions of Change

When asked whether the situation had been different in the past, 77% of respondents believed that the number of primates currently kept as pets is greater or at least equal to the number kept in the past. In Suandala and Mata, the two villages with the greatest proportion of subsistence farming (over 60% of respondents), the majority believed that more primates are being captured and kept as pets today. Common reasons being that there are more people with farms today and monkeys are easier to catch whilst they are foraging in farms.

However, in the predominantly farming community of Wawoncusu, where 50% of respondents were subsistence farmers, three respondents commented that

the number of primates kept as pets has actually fallen because monkeys cause farmers so much trouble that it has become more favourable to poison and eradicate them than to trap them. 40% of Watumotobe respondents also believed that more primate pets had been kept in the past. This response is no doubt influenced by the fact that the majority of respondents were engaged in tertiary sector employment with only 7% claiming to be farmers. Those who did farm reported an agricultural shift from corn to rice farming, a crop unpopular with opportunistic monkeys in this area (Priston, 2004).

It was of concern from a conservation perspective that six respondents revealed that primates are becoming harder to catch. Two respondents elaborated and explained that this was because the number of wild monkeys had decreased. On a more positive note, two respondents from Wakangka, the only village surveyed with a Departemen Kehutanan (Forestry Department) office, informed me that over the last couple of years, villagers have been receiving warnings from rangers that primate pets will be confiscated. This illustrates the potential ranger presence has for law awareness and enforcement.

Due to inadequate population data, it is not possible to say whether the reported increase in primate extractions is having detrimental effects on wild populations. Williams (2004) conducted the first assessment of *M. o. brunnescens* density in the protected reserves of central Buton. A population density of 14.9 individuals/km² was calculated and a population of 3,752 macaques within reserves estimated. This data needs to be used as the baseline for a long-term monitoring programme of macaque populations before the impact of the primate pet phenomenon can truly be discussed.

Extent of the Primate Pet Trade

According to academic literature and the media, trade in wildlife is rampant in Indonesia. With an alleged value of US \$1 billion annually, Indonesia is reputed to be the world's largest exporter of wildlife (Dursin, 2004; Nunan, 2002). Needless to say, this trade is of grave concern to conservationists. However, the trade in primates seems far less extensive and obvious in rural Buton than has been reported in urban areas elsewhere in Indonesia. Theile (1998) described a trade in primates of 'alarming proportions' when he conducted surveys of bird markets in Java and Bali and KSBK (1998, 1999a, 1999b, 2000) has consistently reported unsustainable levels of trade in various primate species.

In Buton, however, villagers with the desire to own a primate pet are inclined to catch monkeys themselves from their own farms or from the surrounding forest rather than use their often limited income to buy one. As discussed, many primates are caught during efforts to protect farms from crop-raiding monkeys. As a Watumotobe resident phrased it, 'the intention isn't to catch pets but to protect farms'. While a commercial trade in primates is not considered to be the main threat to wild populations in Buton, evidence constantly emerged suggesting a small local trade with links to the extensive national trade did exist.

Magnitude of Local Primate Pet Trade

Although 86% of those interviewed were aware that people kept primates as pets, only 26% were aware of a trade in pet primates. Of respondents who owned or had previously owned a primate pet, only 10% had bought them, reflecting the personal acquisition of most pets in the study area. Despite these figures representing the minority, given the remote location of the interview areas from the hubs of trade, limited local knowledge becomes significant.

Several interviewees gave anecdotal evidence of people visiting their village in search of pet primates to buy and take back to Bau Bau. Others informed me that, when caught and extra income was needed, primates would specifically be kept as pets until a purchaser arrived. A Wakangka resident revealed that two people from Bau Bau had visited in search of primates just two months prior to the interview. A Watumotobe resident reported that each person who visits usually leaves with at least one or two monkeys and a Wawoncusu resident said that people visit as often as once every three months. When asked if a specific selling place in Bau Bau existed, interviewees said not.

Buton as Extraction Point

While evidence was limited, some interviewees divulged information suggesting that Buton could be the source location of primates that reached markets and became pets further afield. 15% of respondents that had once had a pet monkey ended up selling it. One villager sold his monkey to visitors from Japan:

When the Japanese people came they saw the monkey and bartered for it.
Eventually I gave them the monkey in exchange for a radio.

(Watumotobe Respondent)

A Wawoncusu resident recounted people from Palau visiting and taking monkeys back with them. A second Wawoncusu resident informed me that their monkey had been stolen five months earlier and that they believed the thief boarded a passenger ship destined for both Makassar and Jakarta.

In Bau Bau, conversations with primate owners revealed that there was even more demand from foreigners in the city. One primate owner said that four requests to purchase his monkey had come from people who lived in other parts of Indonesia, including Jakarta. A second owner explained how a 'white' person had asked to buy his pet, while the owner of a macaque family of five monkeys said he had received various offers including an offer of Rp 4,000,000 (US \$435) from a Korean. While these are fairly isolated cases and the trade in Buton is far less cause for concern than the extensive trade at bird markets in more

prominent urban areas, such as Makassar and Jakarta, it has proven not to be as disconnected as first assumed.

Species Involved and Origin

What was consistent in the literature on primate trade was the presence of alien species³ at bird markets throughout Indonesia. Webber (2002) observed eight non-indigenous species at markets in Java and Sumatra, accounting for 26% of the total number of primates recorded. Similarly, whilst surveying markets in Sulawesi, KSBK (1999b) observed three alien species, all of which supposedly imported from Kalimantan. The alien species recorded in Sulawesi by KSBK were *Nycticebus coucang*, *Hylobates agilis* and *M. fascicularis*.

In Buton, two species were observed being kept as pets: *M. fascicularis* and *M. o. brunnescens*. While *M. o. brunnescens* is endemic to the island, the pet *M. fascicularis* had been imported from elsewhere, but their exact origin is questionable. Although they naturally range throughout Indonesia west of Wallace's Line, in Bali and the Lesser Sunda Islands, they have also been introduced to islands further east, including Tinjil and Palau (Carter, 2005).

When asked where pet *M. fascicularis* originated from, most respondents said Kabaena, a small island to the west of Buton. This island is in Southeast Sulawesi, far from the main range of the *M. fascicularis*. In 2001, the conservation organisation Operation Wallacea conducted a brief biological survey of Kabaena; no *M. fascicularis* were reported (Priston, personal communication). However, if such reports are true, Kabaena is likely to be the only area in Sulawesi with a resident population of *M. fascicularis*. Figure 7.1 maps the transportation routes of primates to and from Sulawesi using data from Buton and the findings of KSBK (1999b).

³ 'Alien species' refers to those outside their natural geographical range.

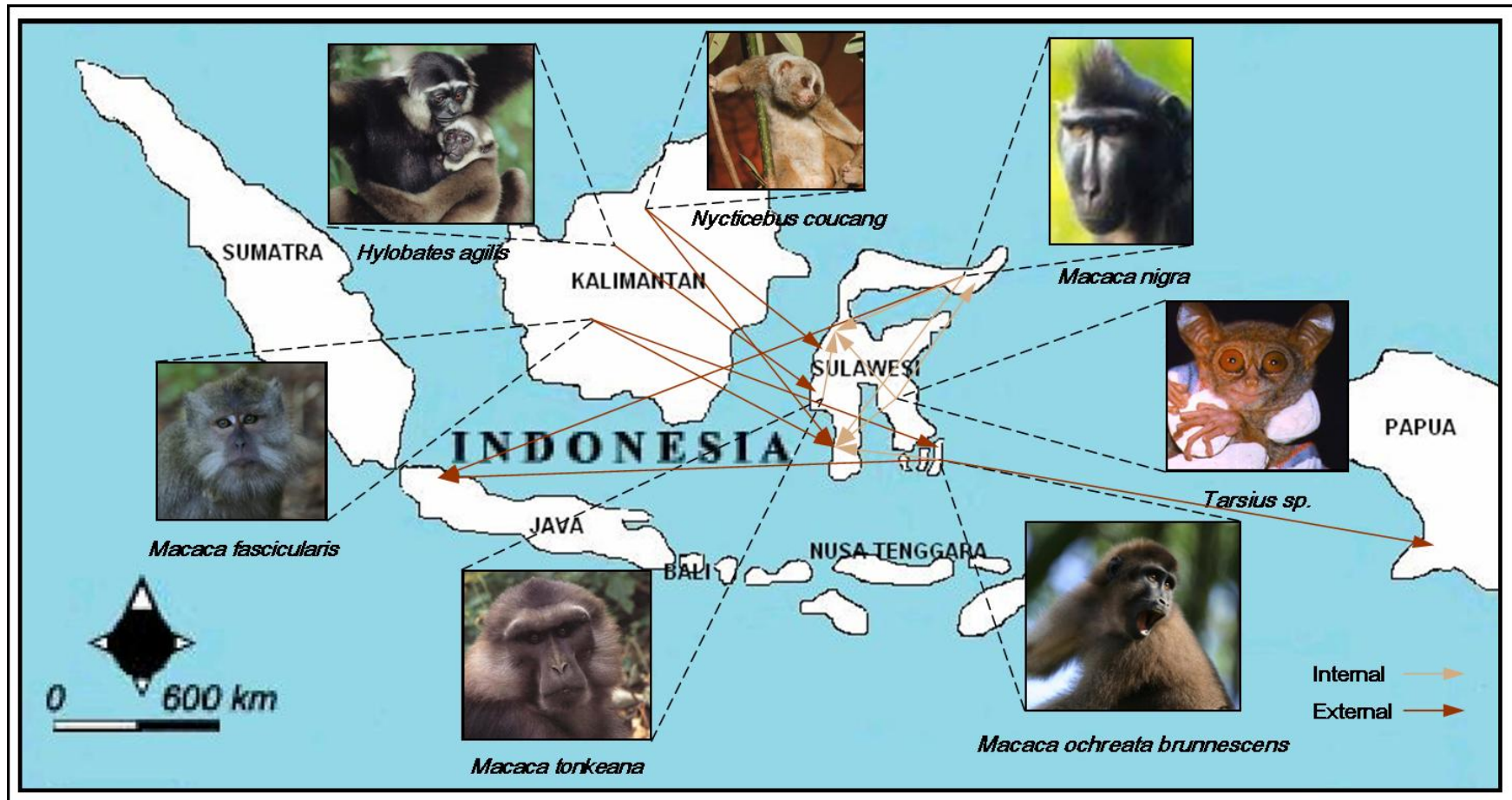


Figure 7.1 Internal and external transportation routes of seven primate species; to, from and within Sulawesi. Using data from this study and KSBK (1999b). Photograph sources: (clockwise from top left) Bloom (1999); King (1996); DOCENT (2004); Operation Wallacea (2004); Priston (personal communication); Rowe (1996); Priston (personal communication).

Transporting primates to areas in which they are not naturally found can cause a series of problems. KSBK (1999b) expressed particular concern because it is feared that these pets could escape or be released, potentially introducing pathogens to the native primate species. A further concern, as expressed by Carter (2005), is that these species could potentially thrive in their new environment, having adverse impacts on native flora and fauna by competing for resources and predated on the eggs and chicks of bird species.

One respondent interviewed revealed that he had deliberately attempted to release his pet *M. fascicularis* into the forests of Buton. In this case, the pet apparently returned, but *M. fascicularis* have become politically controversial in Palau since their accidental introduction. Despite legislation to eradicate monkeys from Palau being enacted in 1975, the species continued to spread across the Palau archipelago because of a trade in them as pets. The eradication programme has now ended, but with more monkeys than people on some of the islands, they are treated as an invading foreign army and are still frequently killed (Wheatley *et al.*, 2002).

Purchasing Costs

The price of primates is documented to vary depending on the age and species of the animal. It is reported that young primates tend to be more expensive than adults because young primates are usually easier to tame (KSBK, 1998). When asked whether infant and juvenile or adult monkeys were preferred, all primate pet owners responded that they would rather have a young monkey. Prevalent reasons being that they are easier to train, adjust better to artificial environments and are more likely to remain tame as they mature. A Suandala respondent explained that 'adult monkeys can never become tame'. Rare and protected species usually demand the highest prices because it is often considered prestigious to own an exotic or endangered animal (Nunan, 2002).

Table 7.1 shows the average prices recorded for macaque species (*Macaca sp.*) traded around Indonesia using results from the various studies conducted. Due to variation in analysis methods between studies, the average price is the mean, mode or median depending on the secondary data available. Although some entries are data deficient, table 7.1 enables the comparison of prices between different species, different locations and between urban and rural environments.

Study	Location	Species	Average Price
KSBK (1998)	Java (rural)	<i>M. fascicularis</i>	Rp 9000 (US \$0.99)
	Java and Bali	<i>M. fascicularis</i>	Rp 91,400 (US \$10.00)
	Java and Bali	<i>M. nemestrina</i>	Rp 230,000 (US \$25.20)
KSBK (1999b)	Sulawesi	<i>M. fascicularis</i>	Rp 17,500 (US \$1.92)
	Sulawesi	<i>M. nigra</i>	Rp 63,000 (US \$6.90)
	Sulawesi	<i>M. tonkeana</i>	Rp 19,000 (US \$2.08)
KSBK (2000)	Sumatra	<i>M. fascicularis</i>	Rp 80,000 (US \$8.77)
	Sumatra	<i>M. nemestrina</i>	Rp 150,000 (US \$16.44)
Priston (2001)	Buton (rural)	<i>M. o. brunnescens</i>	Rp 40,500 (US \$4.44)
Webber (2002)	Java and Sumatra	<i>M. fascicularis</i>	Rp 190,000 (US \$20.82)
	Java and Sumatra	<i>M. nemestrina</i>	Rp 236,000 (US \$25.86)
Irvan (2004)	Sulawesi (rural)	<i>M. tonkeana</i>	Rp 50,000 (US \$5.48)
Jul/Aug 2004	Buton (rural)	<i>M. fascicularis</i>	Rp 43,000 (US \$4.71)
	Buton (rural)	<i>M. o. brunnescens</i>	Rp 57,000 (US \$6.24)
	Buton	<i>M. o. brunnescens</i>	Rp 300,000 (US \$32.86)

Table 7.1 Average prices for *Macaca sp.* in Indonesia. Urban locations unless otherwise stated. Exchange rate: ID Rp 10,000 = US \$1.09.

Price differences are notable between species, with short-tailed monkeys including *M. nemestrina* and the three Sulawesi macaques (*M. nigra*, *M. tonkeana* and *M. o. brunnescens*), commanding higher prices than *M. fascicularis*. The reasons for this could either be aesthetic, as a respondent from Lingkungan Restubuan suggested – ‘beautiful primates are expensive to buy’, or because they are protected species and considerably rarer than *M. fascicularis*. The cost of individuals of the same species also varies substantially between locations. One reason is likely to be whether the species is native to the area in which it is being sold. KSBK (1998, 2000) reported *M. nemestrina* being sold for Rp 230,000 (US \$25.20) in Java and Bali, where it is an alien species, but for only Rp 150,000 (US \$16.44) in Sumatra where it is indigenous. Differences are also apparent between the rural ‘source’ areas and the urban markets. In rural Buton, the average cost of *M. o. brunnescens* was Rp 57,000 (US \$6.24), whereas in Bau Bau the average cost was Rp 300,000 (US \$32.86), suggesting a considerable mark-up between trapper and dealer but also reflecting the disparities in income between rural and urban locations.

Primate Pet Ownership

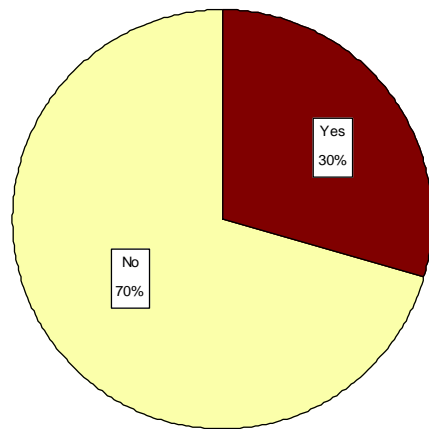


Figure 7.2 Do you or have you ever owned a primate pet?

Previous research in Indonesia has tended to focus solely on the commercial trade in primates, yet the practice of owning a pet caught personally is still detrimental to wild populations. In total, 30% of respondents owned or have in the past owned a primate pet (Figure 7.2), a relatively high percentage suggesting that the current

primate extraction rate could be unsustainable. Studies that have compared an observed extraction rate with a theoretical maximum sustainable yield have

consistently found that hunting at a subsistence level, whether for bushmeat or the control of crop-raiders, is not sustainable for many species (Cowlshaw and Dunbar, 2000). However, long-term population data for macaques in Buton is required before such a claim can be supported.

Location	Number of Pets Observed	Percentage of Respondents Who Have Owned a Primate
Wakangka	2	25%
Lingkungan Restubuana	0	15%
Watumotobe	2	20%
Wawoncusu	1	65%
Suandala	1	25%
Mata	2	30%
Labundo-bundo	0	
Lawele	1	
Toruku	1	
Bau Bau	10	

Table 7.2 Number of primates discovered in the six study villages, the three observed villages and the city of Bau Bau, accompanied by the percentage of respondents from each study village that have owned a primate pet.

Table 7.2 shows the number of primate pets discovered at each location visited during the research period. In nine villages, a total of ten pet macaques were identified. If this figure was projected across the whole of Buton, there could be as many as 184 primates being kept as pets at any one time in the 165 villages on the island. In addition to the pets observed, a further seven respondents said they had owned a primate within the last 6 months. When asked how many primates were captured to be kept as pets within their village each year, estimates ranged from 0 to 10 (Figure 7.3). Given the relatively high turnover in primate pets, as the total length of time in captivity averaged at just 12 months,

this phenomenon could be resulting in the extraction of an alarmingly large number of macaques each year.

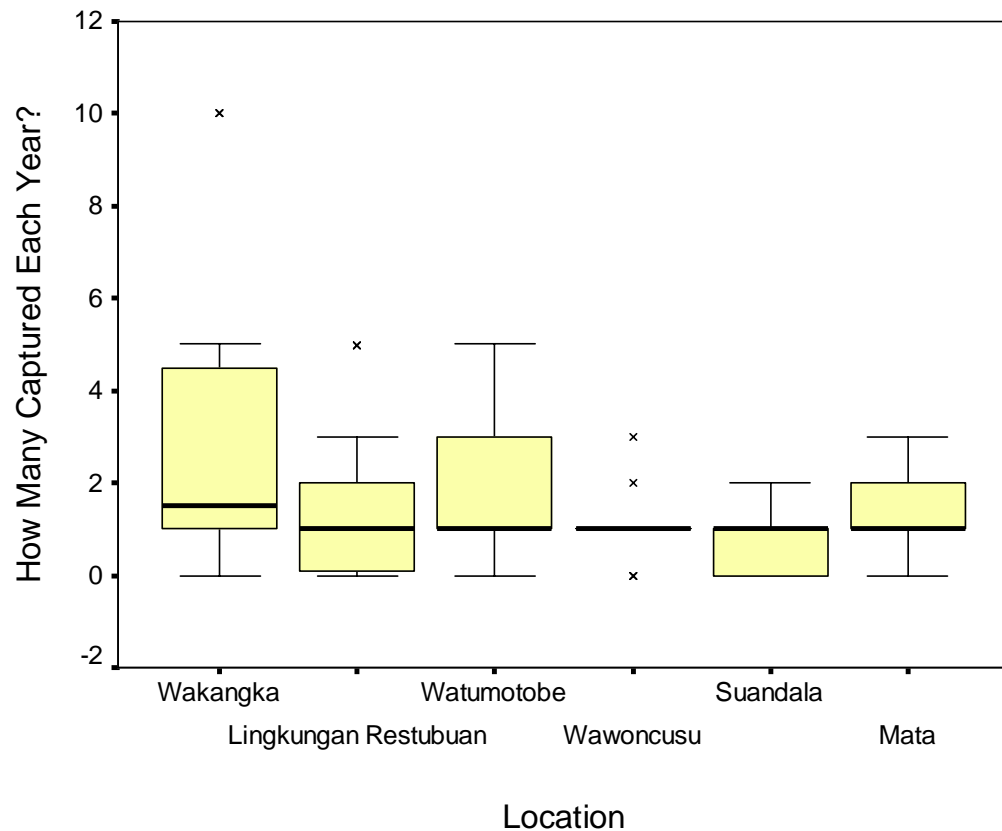


Figure 7.3 Estimated number of primates captured to be kept as pets within each village per year.

The popularity of owning a primate as a pet varied from village to village. The null hypothesis, 'primate pet ownership does not differ between villages', was tested using chi-squared. The calculated value of χ^2 exceeded the critical value and the null hypothesis was rejected at a 0.007 significance level. The Hindu village, Lingkungan Restubuan, had the lowest percentage of primate pet ownership with just 15% of respondents having owned a monkey, whereas 65% of Wawoncusu respondents (a Muslim village) said they had owned a monkey at some point during their life (Table 7.2).

Religion could be a key factor influencing this variation. Prominently placed in Hindu religion is Hanuman, the Monkey God, worshipped as a symbol of physical strength, perseverance and devotion (About.com, 2005). When a religious figure from Lingkungan Restubuana was interviewed, he said that monkeys were human in terms of behaviour and that it was forbidden by his religion to keep or trade in them. However, not everyone in the village followed his sentiment. After studying attitudes towards crop-raiding macaques, Priston (2004) concluded that Hindus would actually be more willing to kill primates than Muslims, if they thought it necessary. Hindu respondents told her that it was the white monkey that was special and black monkeys could be killed or even eaten. Indeed, it may more likely be due to the fact that the residents of Lingkungan Restubuana farm rice, an unpopular crop with monkeys in this area, than the fact they are Hindu. To reinforce this crop preference and human/primate conflict hypothesis, Wawoncusu farmers tended to farm vegetables, corn and cashew nut; foodstuffs favoured by macaques (Priston, personal communication).

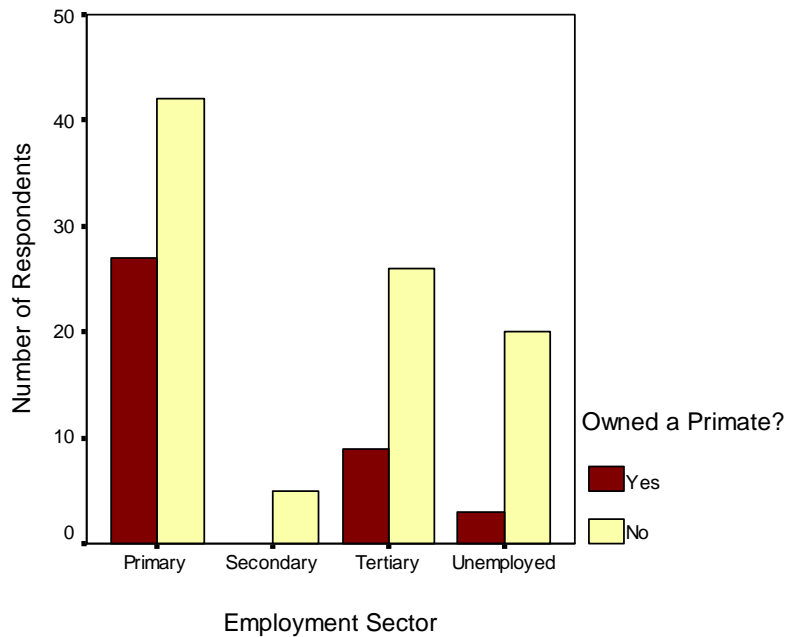


Figure 7.4 Number of primate pet owners in each employment sector.

Figure 7.4 portrays how primary sector workers, i.e. farmers, account for the majority of primate pet owners. This revelation somewhat contradicts preceding reports that claim primates are kept by high ranking officials as a symbol of their status (Dursin, 2004; KSBK, 1998; Nunan, 2002). However, these reports focused on the trade in urban areas where primates are assigned a higher value. As a Suandala respondent summarised – ‘People in Java live further from the forest so monkeys are more popular. Here, however, mostly farmers feel primates are pests’.

During interviews, some indication was received from various respondents that primates were popular pets amongst soldiers. On three separate occasions, interviewees told stories of how they had sought to acquire monkeys in order to give them as gifts to high-ranking army officials in an attempt to get into the armed forces. Disturbingly, one informant told me how he had killed three adult female macaques from one family group in order to catch their infants. Unfortunately, after just four months the first three infants escaped and the respondent was forced to hunt and kill three more lactating females for their young. Eventually these infants were given to an army official in Kendari, the administrative centre of Sulawesi Tenggara, thus ensuring entrance into the army. It appears to be the case that high-ranking officials, as reported by KSBK (1998), have ‘immunity to the law’ because soldiers’ menageries are often well known and considered an impressive attribute.

Age and Sex Profiles of Macaque Pets

Of the macaques captured, 70% were reported to be infants (Figure 7.5). While most claimed that these infants had simply fallen from their mothers when chased or had been caught in traps, there is cause for concern over the number of adult females injured or killed during these acquisitions. Many said that they commanded dogs to attack monkeys that entered their farms. Naturally due to the hindrance of carrying an infant, the lactating females of a group would frequently be attacked first. Harvesting could, therefore, result in substantial

changes to the macaque population structure, potentially resulting in a male-bias (Cowlshaw and Dunbar, 2000). Not only can this affect the social structure of a macaque group, it will also hasten population decline (Rowe, 1996).

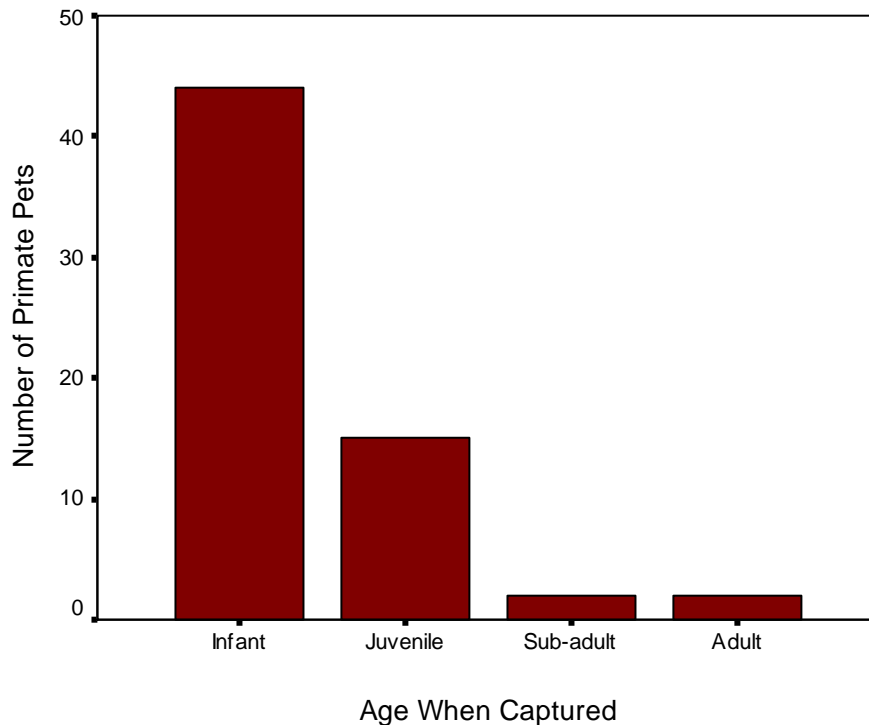


Figure 7.5 Age of primates when captured.

Primate populations can easily become overwhelmed if the demand for pets exceeds a species natural proliferation rate (Cowlshaw and Clutton-Brock, 2001). Macaques, as with all primates, are extremely vulnerable to hunting and poaching due to their low reproductive rates and long inter-birth intervals. As detailed life history studies on the Buton macaques have yet to be conducted, it is not known how long their inter-birth cycle is. Nevertheless, removing the reproductive females from a group will hinder population recovery and growth. Furthermore, removing the infants reduces the number of successors to a group.

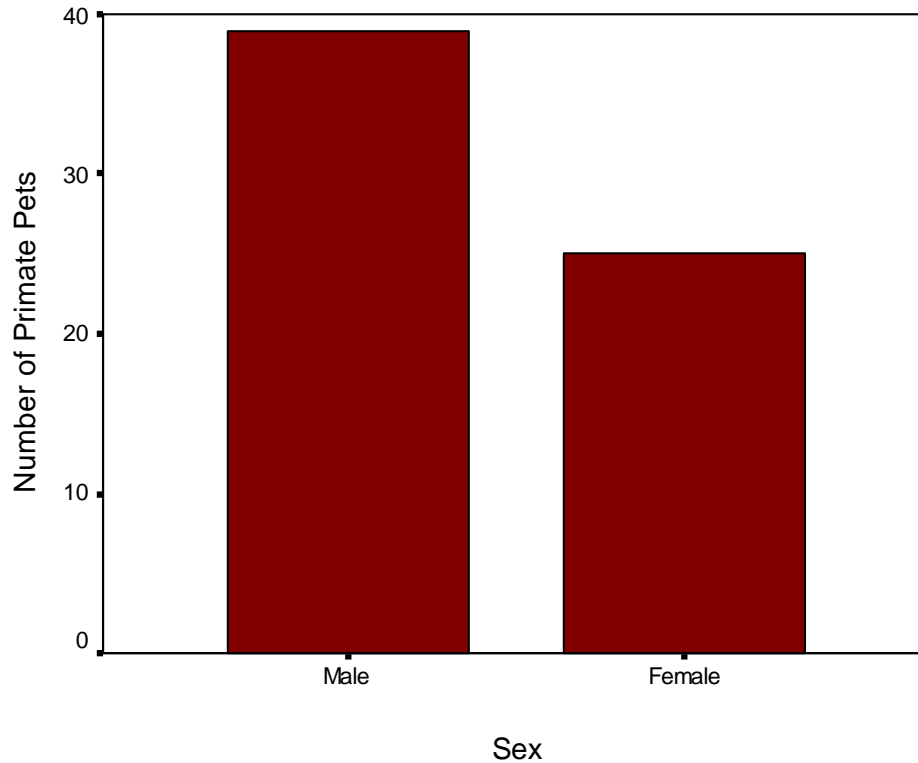


Figure 7.6 Sex of pet primates.

The sex of pet macaques differed significantly ($\chi^2 = 3.063$, $df = 1$, $p = 0.080$), skewed in favour of males 1.6:1 (Figure 7.6). Removing infant male macaques is slightly less detrimental to a macaque group than removing the infant females that are the reproductive females of the future. Also any male-bias within the macaque group is reduced. Webber (2002), however, observed the opposite, but concluded there to be no significant difference between males and females. Due to the frequent indiscriminate acquisition of infant monkeys, there is a high probability that this finding is coincidental and accepting the chi-squared result could potentially lead to a type II error.

For the monkeys observed in captivity, sex/age clustered bar charts were plotted (Figure 7.7). The relationship portrayed shows that while a high proportion of males are kept as infants, the number of males kept in captivity decreases as they mature, most likely due to an increase in aggressive behaviour. While

females are likely to become more aggressive when they mature their smaller size and often milder temperament means that not as many female monkeys are discarded by their owners, so many of the females viewed in captivity were in fact adults.

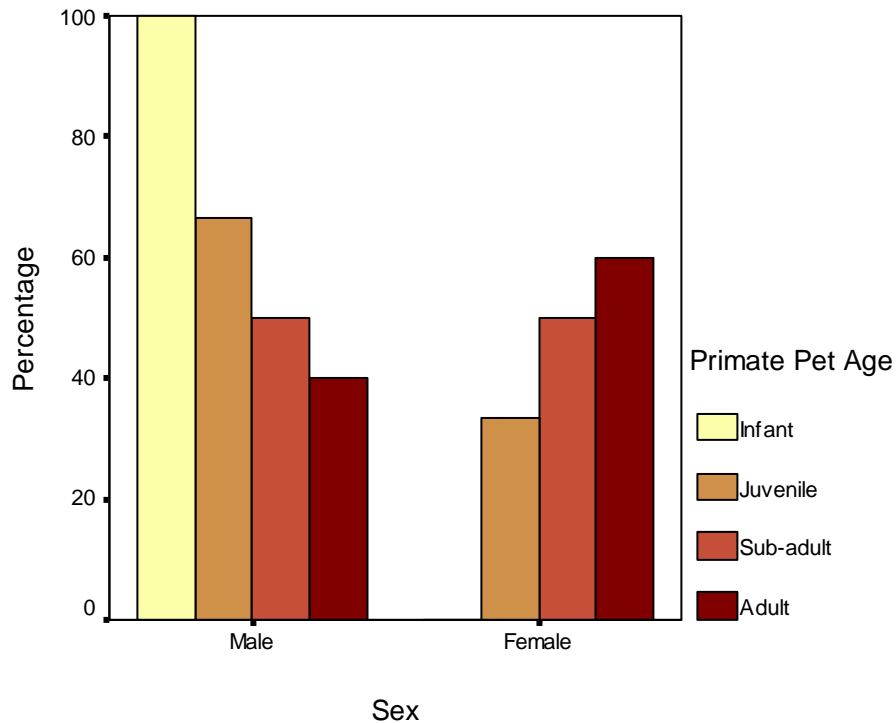


Figure 7.7 The age/sex profile of primate pets.

Capture Methods

To further test the association between the crop-raiding activities of macaques and their acquisition as pets, respondents were asked about how and where macaques were captured. 60% disclosed that their pet had been caught on their farm. Methods varied from trapping to chasing and the percentage of each method is depicted in figure 7.8. The overwhelming majority caught primates when they chased groups out of their farms. Many commented that by capturing one of the crop-raiding primates they wanted to scare the rest of the macaque group, discouraging them from entering the farm again in the future.

When asked whether they had actively sought to acquire a pet, 66% said they had; a statistically significant proportion ($\chi^2 = 6.452$, $df = 1$, $p = 0.011$). A number of these said that they had captured a primate primarily to protect their farm. An important factor to consider is that 34% of the macaques captured were actually caught unintentionally. Although many respondents claimed that they had ‘taken pity’ and ‘rescued’ infants supposedly abandoned in farms by their mothers, as shown in figure 7.8, a large proportion of primates were actually captured in traps intended for other species, including jungle fowl and wild pig. This represents a high number of unnecessary acquisitions that could be prevented if species specific traps, as suggested by Taylor and Dunstone (1996), were used.

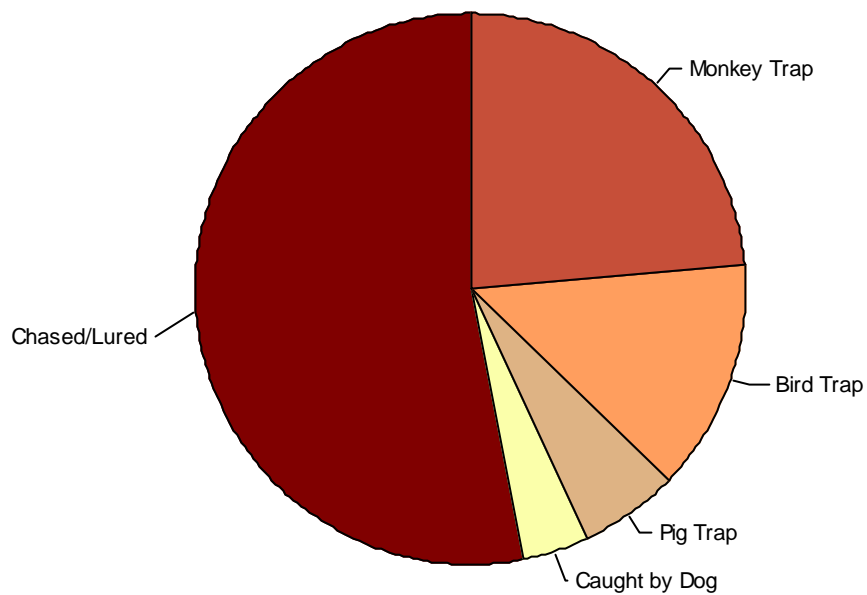


Figure 7.8 Capture methods.

Welfare Issues

Although not the focus of this investigation, the conditions in which primate pets are kept is an important issue and one requiring further research. This section offers a brief overview of the conditions noted during this investigation.

Of the twenty primates directly observed during the study:

- Ten were housed in cages ranging in size from $\frac{1}{2}$ metre² to $2\frac{1}{2}$ metres², with the highest concentration of primates in any one cage being four.
- Six were tied, either by metal chain or rope, to poles with either a platform or a small shelter at the top. Most of these monkeys were able to climb up and down their pole, but their degree of freedom depended on rope length which averaged at $1\frac{1}{2}$ metres.
- Four were tied either to a tree or a tree/pole combination. Although restricted by chains and ropes as described above, these monkeys were usually able to exhibit more natural climbing behaviour because of the number of branches within reach.
- Four of the monkeys mentioned which were tied either to poles or trees were given additional freedom on a regular basis. One was taken around on a lead and attached to other objects such as chairs, while the other three were often given complete freedom to roam around both outside and inside the house. Although this puts them at increased risk of attack by dogs, in general these monkeys appeared much healthier and more content.

Most pet owners paid fairly careful attention to feeding their monkeys. The common diet of a pet primate consisted of appropriate foodstuffs such as bananas, corn and sweet potato, reported by Priston (personal communication) to be macaques' favourite crops, as well as cassava and rice. The conscientious primate owners varied their pet's diet on a daily basis; however, less considerate owners reported giving their pets fish (an unnatural foodstuff for macaques), one

owner said he gave his pet beer and cigarettes and several owners admitted that they had become bored with their pet and allowed it to starve.

Behavioural problems are common amongst captive primates because they have highly developed brains and a high level of intelligence. Macaques in particular, have complex social lives and a very inquisitive nature causing them to crave stimulation when removed from their natural environment and natal troop. The primates observed during this study displayed a number of behavioural conditions and examples are shown in the video clips of appendix 5 and explained in table 7.3 (Born Free, 2004).

Clip 1	Escape reaction: <ul style="list-style-type: none"> • This sub-adult male macaque rushes haphazardly around and repeatedly hammers on the door of the cage. Stereotypic circling and pacing is also displayed.
Clip 2	Stereotypic behaviour – Pacing: <ul style="list-style-type: none"> • This sub-adult female macaque continually walks back and forth along its pole.
Clip 3	Stereotypic behaviour – Swaying: <ul style="list-style-type: none"> • Or in this case swinging. This juvenile repeatedly launches itself from its perch and swings by the rope attached to its waist until its owner replaces it.

Table 7.3 Behavioural abnormalities displayed in the video clips of appendix 5.

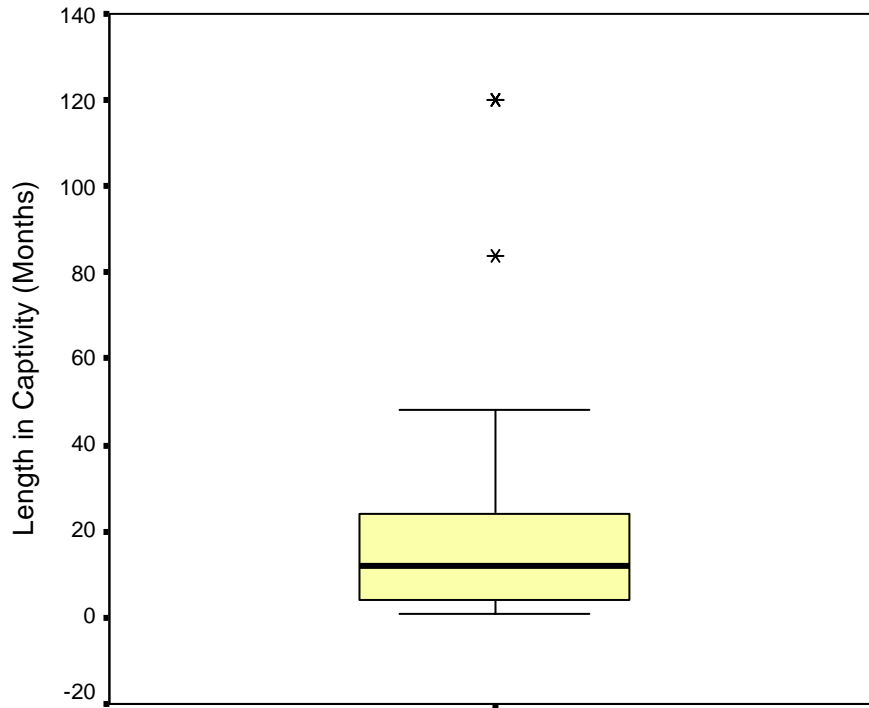


Figure 7.9 Length of time primate pets spent in captivity.

Interviewees who had owned a primate pet in the past were asked questions about its fate and the length of time it had been kept. The average length of time most monkeys spent in captivity was 12 months. However, as the boxplot in figure 7.9 shows, length of time in captivity varied from 1 to 120 months but tended to range between 6 and 30 months. After which time a variety of fates were revealed with accidental death (choking, strangulation etc), escape, starvation and trading being the most common (Figure 7.10). In the comparative study conducted in Mexico City, Duarte-Quiroga and Estrada (2003) discovered that accidental death was the final fate of pets in 89% of cases. This substantially greater proportion is due to the different context in which these primates are kept. Frequently the pets identified in Mexico City were housed indoors, increasing the risk of electrocution and intoxication.

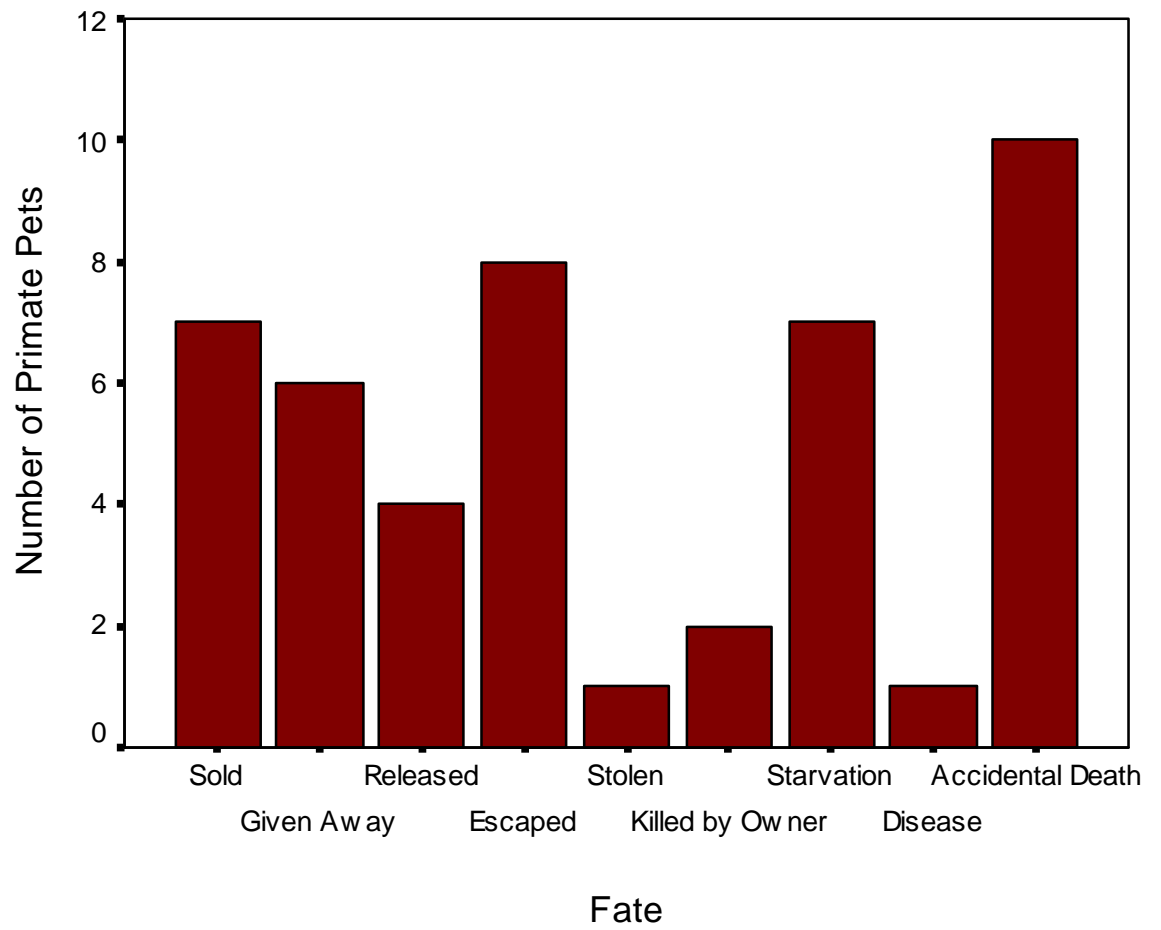



Figure 7.10 The fate of primate pets.

Law Awareness and Enforcement

Definitive legislation is rather illusive within Indonesia. Confusion surrounding the laws associated with protected species is both apparent in the literature and in the communities to which the laws apply. While a vague but often imprecise idea of the relevant Indonesian laws can be gained from articles in The Jakarta Post and academic papers, only ProFauna Indonesia quoted the correct law number directly in several reports (KSBK, 1998, 1999a). Once in Indonesia, and after an arduous search, a copy of the appropriate law book was eventually acquired from the KSDA. Figure 8.1 shows the appropriate articles translated into English.



LAWS OF THE REPUBLIC OF INDONESIA

Law No.5 1990

THE CONSERVATION OF
NATURAL RESOURCES AND ECOSYSTEMS

Article 21

(1) Every person is forbidden to:

- a. take, cut, damage, destroy, keep, transport, trade protected plants or parts of those plants either living or dead.
- b. move protected plants or parts of those plants either living or dead from one place in Indonesia to another place within or outside Indonesia.

(2) Every person is forbidden to:

- a. catch, injure, kill, have, keep, transport, trade living animals which are protected.
- b. have, keep, transport, trade dead animals which are protected.
- c. move protected animals from one place in Indonesia to another place within or outside Indonesia.
- d. trade, keep, possess the skin, body or body parts of protected animals or any item made from parts of the protected animal, or move them from one part of Indonesia to another place within or outside Indonesia.
- e. take, destroy, damage, remove, trade, keep, possess the eggs or nests of protected animals.

Article 40

(2) Whoever intentionally breaks the law of article 21 points 1 and 2 will be prosecuted with a maximum of 5 years prison sentence or a fine of Rp 100,000,000.

(4) Whoever unintentionally breaks the law of article 21 points 1 and 2 will be prosecuted with a maximum of 1 year prison sentence or a fine of Rp 50,000,000.

Figure 8.1 Law No.5 1990. Adapted from KSDA (1990).

Legislation Awareness within the Community

'You're allowed to keep a pet monkey as long as you don't kill it'.
'If a monkey is intentionally captured to be kept as a pet, a licence is required. If the monkey was caught by chance, it can be kept without a licence'.
'All forest animals are protected by government'.
'People are allowed to keep monkeys as long as they aren't seen by the forestry department'.

Figure 8.2 Example responses to 'What are the laws associated with primates?'

To gain an insight into the level of local legislation awareness, interviewees were asked whether laws associated with primates existed. While 45% were vaguely aware of some form of legislation that could encompass primates, few could give details and the remaining 55% either responded that there were no such laws or simply admitted that they had no idea. When asked whether the trading of primates or the keeping of them as pets was legal, the responses received exposed the lack of clarity amongst local communities with regard to wildlife protection. Figure 8.2 shows some of the responses given.

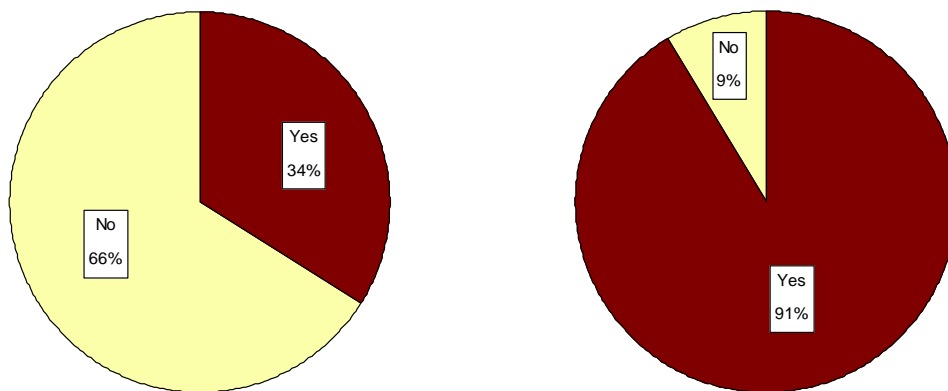


Figure 8.3 Are you allowed to buy and sell primates?

Figure 8.4 Are you allowed to keep a primate as a pet?

Figure 8.3 portrays that 66% of respondents were vaguely aware that it is illegal to buy and sell primates, as quoted in clause 2a of Law No.5 1990 (Figure 8.1). However, as portrayed in figure 8.4, only a mere 9% were aware that it is illegal to keep a protected primate species as a pet despite clause 2a of Law No.5 1990 explicitly stating that ‘every person is forbidden to catch, have, keep living animals which are protected’ (KSDA, 1990). When asked whether they had been told about the laws regarding protected species, 69% revealed they had not, and only 18 of the 130 respondents to this question had been informed of the laws either at school or by the KSDA directly.

Who Is Legally Aware?

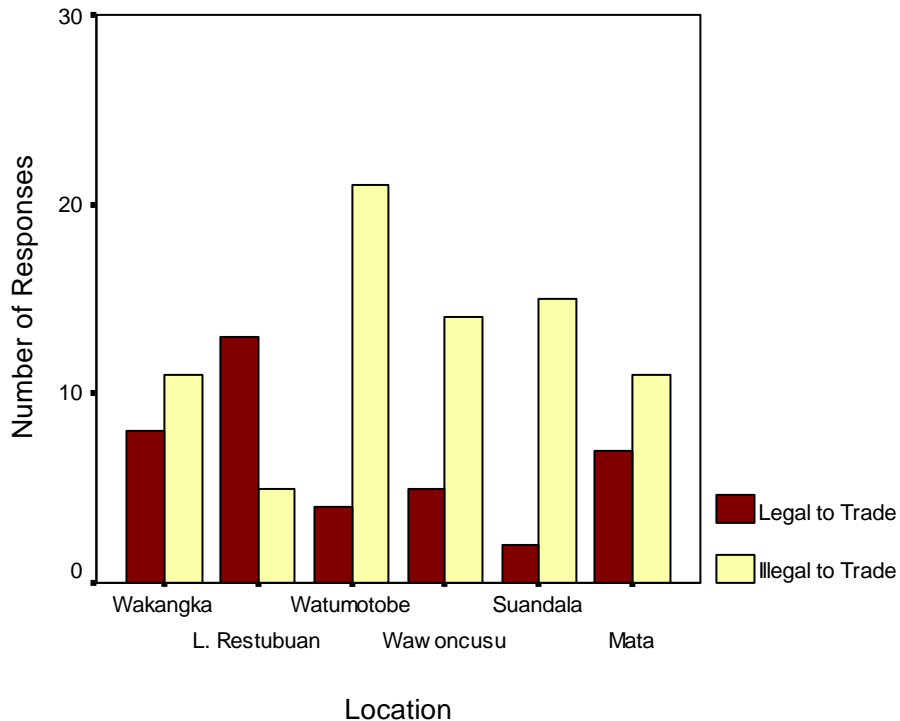


Figure 8.5 How perceptions of the legality of trading vary depending on location.

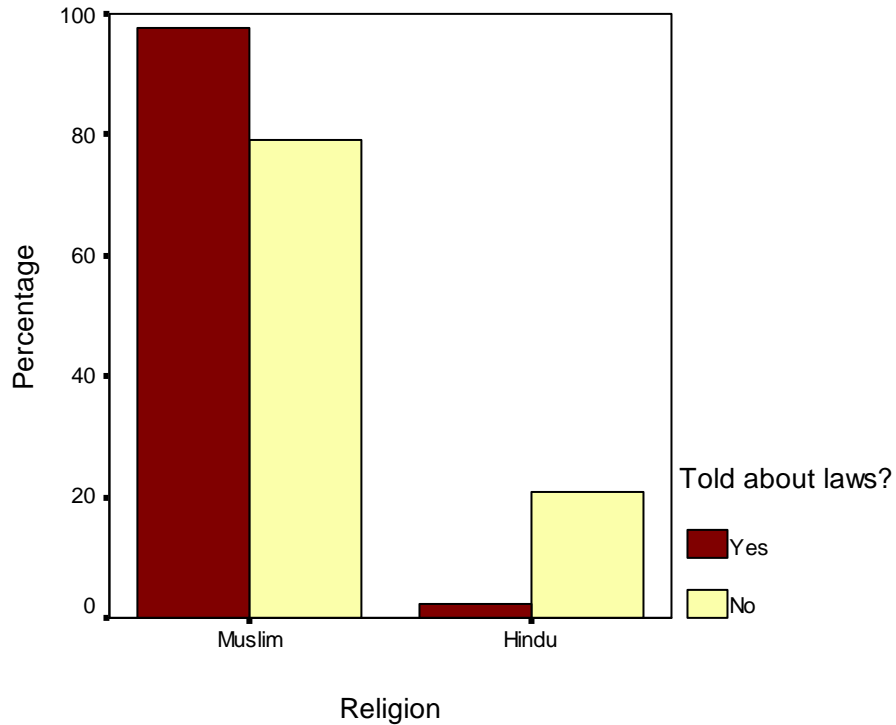


Figure 8.6 How knowledge of laws relates to religion.

Different aspects of legislation awareness were compared with respondent location to identify variation in legal education between villages. Although in most of the villages the majority of respondents believed it was illegal to trade in primates, as figure 8.5 shows, the majority of Lingkungan Restubuan respondents actually thought the opposite. Lingkungan Restubuan is the Hindu village and, as figure 8.6 portrays, Hindus are significantly less likely to be notified about laws than Muslims. However, this may not simply represent religious discrimination but the fact that the Hindus of Lingkungan Restubuan are transmigrants that, despite many having lived in Buton for over 20 years, have not yet fully integrated into Butonese society. They still remain spatially disconnected and have retained their own cultural practices and ideas.

The presence of the Forestry Department within Wakangka also appears to have created disparities between villages. Wakangka was the only village where

the majority of respondents (55%) said they had received some form of information about wildlife protection laws. However, the detail of such information is questionable because a large proportion of those who thought the trade in primates was legal were actually Wakangka residents (Figure 8.5).

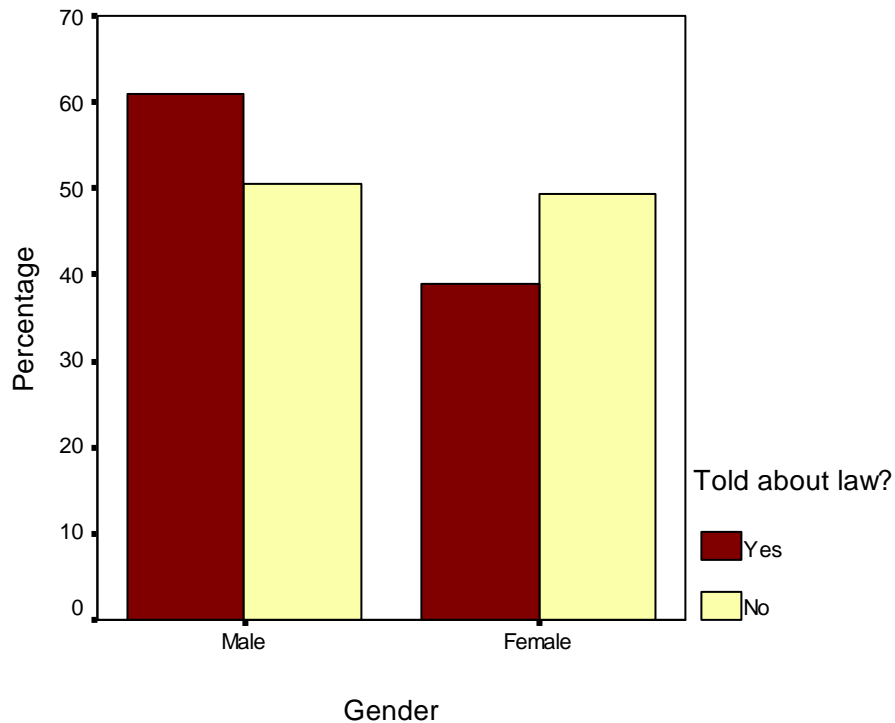


Figure 8.7 Percentage of males and females told about the law.

Unsurprising in a male dominated society, gender inequalities were apparent. The percentage of females unaware of the laws associated with protected species was greater than the percentage of males, because a greater proportion of men are told about the laws than women (Figure 8.7). Such a situation is often the case in developing countries where women are seldom engaged in conservation policy and are often marginalised and discouraged from expressing opinions (see: Lee and Priston, in press). This situation is further highlighted by the fact husbands, still typically the head of households, are still better informed and more aware of legislation than their wives and families.

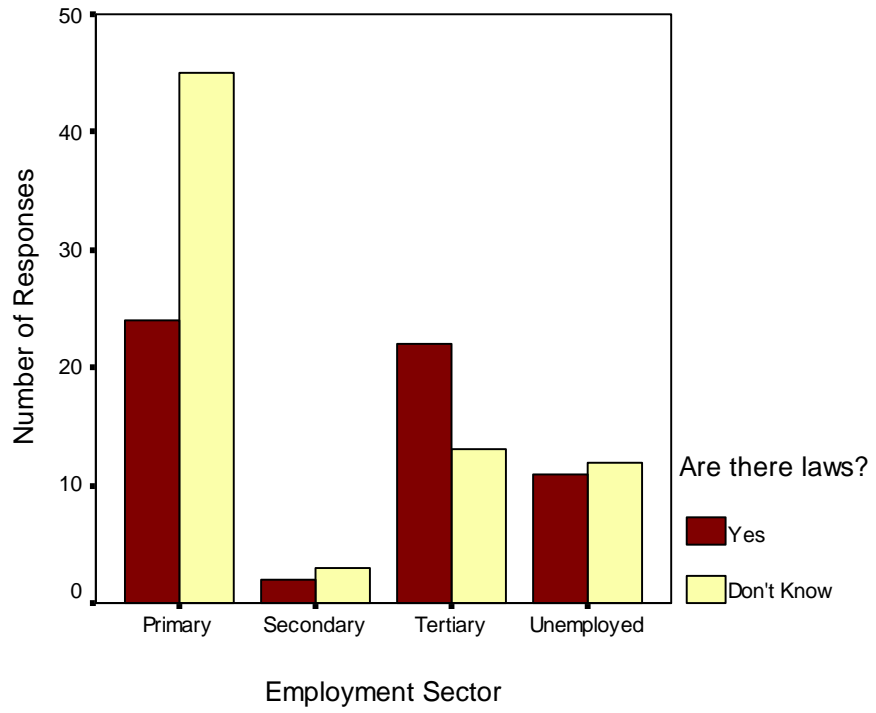


Figure 8.8 How knowledge of the law relates to employment.

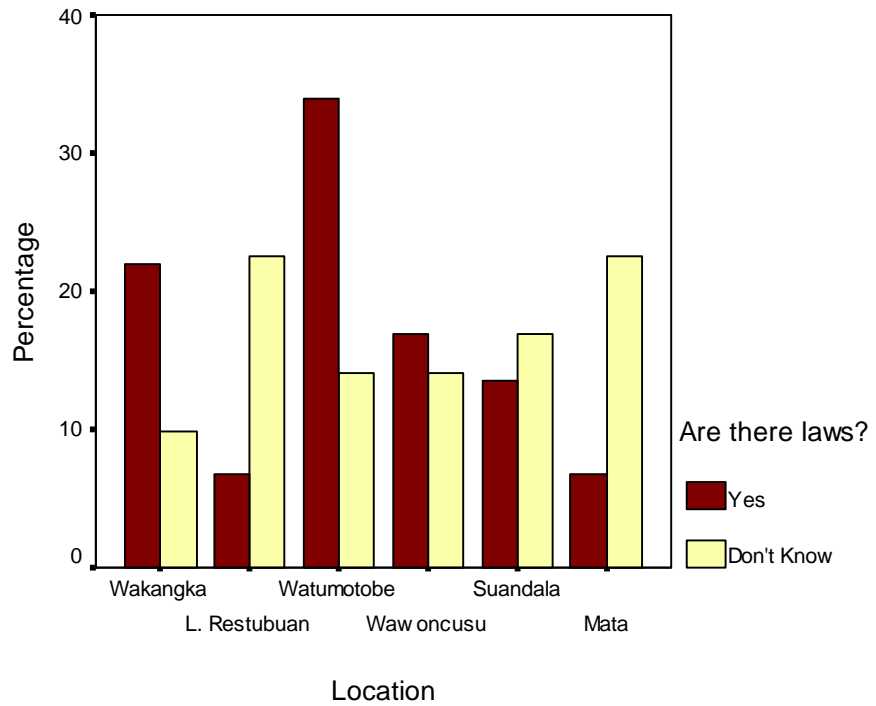


Figure 8.9 Percentage of residents with knowledge of the law.

There appears to be a close relationship between the level of legislation awareness in each village and the employment structure of that village. As figure 8.8 portrays, primary and secondary workers and the unemployed appear to be less aware of conservation legislation than those working in the tertiary sector. This being fairly obvious given that civil servant and teaching jobs tend to demand a higher level of education. The villages with the greatest proportion of tertiary sector workers, i.e. Wakangka and Watumotobe, also have the greatest percentage of people aware of protected species legislation (Figure 8.9). So it appears that the employment structure and associated education level of a village are good indications of legislation awareness. In addition, these villages are increasingly becoming the most affluent in the district, so receiving more attention from government departments.

Legislation Awareness within Government Departments

Confusion and clarity issues are not restricted to the general public; contradicting accounts also arose amongst the officials interviewed. Interviews with six officials from five different departments of The Ministry of Forestry were arranged. Figure 8.10 illustrates this ministerial hierarchy in diagrammatical form. Clear disparities were apparent between the officials' accounts of the law relating to primates. While some were able to clearly convey an outline of Law No. 5 1990, other responses were inconsistent, confusing and to the best of my knowledge, incorrect.

The officials with alarmingly poor knowledge of laws that should theoretically be of considerable importance to a forestry department and conservation authority were surprisingly those with central leadership roles. Both Official 1, leader of the Departeman Kehutanan in Bau Bau, and Official 3, section head of KSDA Muna/Buton, were unable to name the correct law or give a clear indication of

what the law prohibited. A degree of ignorance and distance from reality can almost be expected from Official 1, due to his bureaucratic position within a

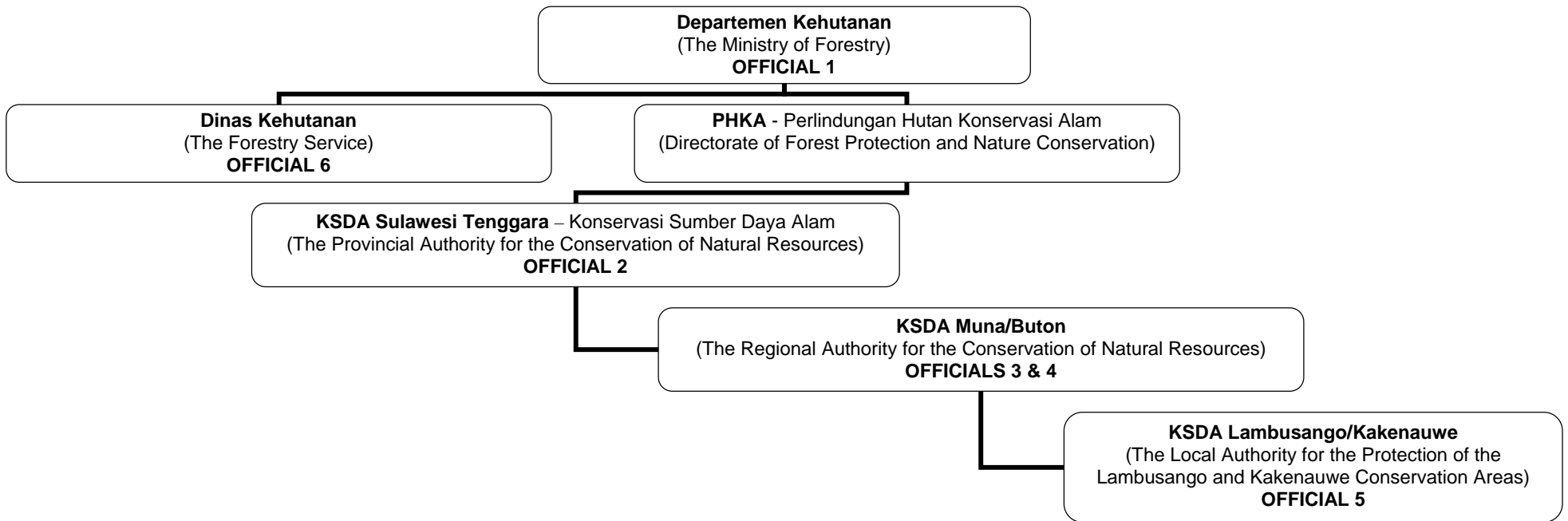


Figure 8.10 Organisational structure of The Ministry of Forestry.

central department responsible not only for conservation but forest management in general. However, three tiers down in the regional KSDA office, the distorted knowledge of Official 3 is somewhat concerning. Despite his administrative role, a more informative account of the relevant law was expected rather than a long-winded spiel about licensing. Due to the unprompted attention paid to animal welfare during this interview, I got the impression Official 3 was telling me what he thought I wanted to hear and not what he actually knew.

Responses from three other KSDA officials were more encouraging, and reassuring, since these officials have a direct influence on conservation law enforcement. Positioned within KSDA provincial and regional offices, Official 2 and Official 4 were responsible for managing reserves and ranger patrols at their respective levels. Both were capable of reciting Law No. 5 1990 exactly including the penalties associated; dispelling any idea that lack of law enforcement was due solely to communication inadequacies in higher tiers of government.

At a local level, official representatives from the two forestry department offices in villages within my study area were also interviewed. Official 5, head of the KSDA office in Labundo-bundo, was in charge of protecting the forest reserves and wildlife in Buton. He was able to name the relevant law and detailed that monkeys could not be hunted, killed or injured in the forest. However, when asked whether it was legal to keep a monkey as a pet, he informed me that it was, provided that a licence was obtained.

Although not a KSDA office, the Dinas Kehutanan office in Wakangka coordinates ranger activity in ten villages and the surrounding forest areas of central Buton. The primary job of these rangers is to manage production forest and prohibit illegal logging within the forest reserves. However, they appeared to be the most proactive official presence in the study area and an interview with the Operations Manager proved insightful. Official 6 knew nothing about the law

associated with primates as it was not an issue dealt with at his office. In fact, he believed that it was legal to buy and sell primates provided permission was granted from the KSDA. Official 6 was the first to indicate that a degree of corruption was occurring – ‘If people break the law they must pay money to the ranger’. Corruption, a common element of governance in many developing countries, is a profound threat to primates across the world. The instigation of laws is of no conservation benefit when their principle use is as bribes. This office had two monkeys caged in a prominent position beside the entrance and the rangers were clearly proud of them.

A recurring theme in the interviews with officials was the issue of licensing. All official interviewees said that people were allowed to keep protected primate species as pets provided that a licence was obtained from the KSDA. However, no official document detailing the nature of licences could be obtained and Law No.5 1990 mentions no exceptions. Official 4 disclosed that the licensing system was an unwritten policy of the rangers. Substantiating that the licensing system could be a form of bribery, a Wawoncusu respondent explained:

You need a licence from the forestry department to keep monkeys, however, I have never known anyone get a licence, instead you give the forestry department a ‘thank you’ payment for a forestry official to arrange a ‘*licence*’ [emphasis added].

Despite all officials referring to a licensing system, none of the primate pet owners interviewed had licences. So even if the licensing system is statutory, it was not enforced within the study area.

Law Enforcement

Indonesian law enforcement, or the lack of it, receives a lot of attention in the media and in previous reports on the primate trade. In 1998, KSBK constructed a large billboard at the Malang Bird Market in Java illustrating a slow loris with a warning saying that the species was protected by law and stating the penalties

associated with Law No.5 1990. Ironically, slow lorises have been traded directly beneath the board with sellers simply claiming that the board was untrue (KSBK, 1999a). Djuhari (2002) commented on the fading billboard overlooking the market, calling it a failed campaign to combat the illegal trade.

KSBK have made repeated attempts to demand the government educate the public about the applicable laws. However, traders usually know the law, and they also know that it is not enforced (KSBK, 1999b). Protecting endangered species is simply given very little concern by officials; it is even reported that officials are involved in animal trade networks (Dursin, 2004). KSBK (1998) claim to have discovered a PHKA official involved in ebony langur (*Trachypithecus auratus*) hunting and uncovered conspiracies at bird markets; whereby traders pay PHKA officers to inform them of potential seizure operations.

When official interviewees were asked about the current level of law enforcement, all responded that no one in Buton had ever received punishment for breaking the law. Awareness of the number of offenders differed, with Official 1 claiming that the law had never been broken to Official 4 estimating that the law was broken at least ten times each year. The general consensus between officials was that the current policy was to educate communities about the law rather than enforce it. So is Law No. 5 1990 actually having any effect? Technically it appears not, the primate pet phenomenon continues and legislation awareness amongst communities remains minimal. However, if nothing else, a key benefit of Law No.5 1990 is the political stance it gives conservationists.

Local Attitudes

Attitudes towards Macaques

To assess the situation further and explain local actions, respondents were asked their opinions of and attitudes towards macaques. During interviewing, distinctions were made between captive and wild monkeys and interviewees were asked whether they liked or disliked them. The overwhelming majority responded that while they liked captive macaques they strongly disliked wild ones. Reasons for these opinions were given by most respondents and are detailed in tables 9.1 and 9.2. The most prominent positive attitude towards captive macaques is that they are harmless and no longer a threat to humans or farms. Unsurprisingly, the most prominent negative attitude towards wild monkeys is that they raid crops.

Positive	Negative
Harmless – 35%	Fear Attack – 4%
Entertaining – 28%	Naughty – 1%
Useful When Trained – 22%	Boring – 1%
Companionship – 4%	Monkeys are Enemy – 1%
Groom / Remove Head-lice – 3%	
Beautiful – 1%	

Table 9.1 Attitudes towards captive primates.

Positive	Negative
Interest Value – 5%	Raid Farms – 50%
Not All Raid Farms – 3%	Fear Attack – 39%
Natural Resource – 1%	Fear Rabies – 2%

Table 9.2 Attitudes towards wild primates.

It is quite astonishing how attitudes to the same individual can change from utter contempt to affection due solely to the application of human control. 81% of respondents praised the characteristics of captive primates; saying that they were intelligent, sociable, amusing, helpful and human-like in their behaviour. Then many (84% of respondents in total) went on to say how much they detested wild macaques. Macaques display the same characteristics in the wild as most captives do, but it is exactly their intelligence and ability to cooperate in groups that enable them to raid farms so successfully, even when deterrence mechanisms are in place. When such characteristics and behaviour are not under human control they are perceived as a threat. A threat to personal safety and most of all, a threat to livelihoods.

Macaques as Scapegoats

It is the reflection of ourselves in primates that cause people to love them and loathe them at the same time. With similar intellect, common physical features and comparable food preferences, primates are conspicuous 'villains' when crops are damaged and someone needs to distribute blame. In Buton, Priston (unpublished) revealed that 65% of sweet potato damage was actually done by pigs, twice the amount of damage that monkeys cause, but it is the macaques that serve as the scapegoats. The amount of blame primates receive is often out of proportion with the economic or social costs their actions impose (Lee, 2004). Amongst subsistence farmers, whose fears of what could happen, i.e. the devastation of an entire crop, outweigh recognition of what actually happens, the perception of damage is often hugely inflated (Knight, 2000).

Opinions on the Primate Pet Phenomenon

To gauge local opinion of the primate pet phenomenon, interviewees were asked whether or not they agreed with trading in monkeys and keeping them as pets. Whilst a large majority of 72% agreed with keeping monkeys as pets, only 40% agreed with trading in them. Opinions showed a tendency for men, who

traditionally are the providers, to favour trading over women. Again, a relationship emerged suggesting that a high proportion of those who agreed with trading were farmers. As figure 21 depicts, 71% of those who agreed with trading worked within the primary sector and difference in opinion between sectors was proved significant by a chi-squared test ($\chi^2 = 13.532$, $df = 3$, $p = 0.004$). When asked to explain their response twenty one people told me that an increase in trading would be welcomed because it would reduce the number of monkey pests.

Monkeys are enemy, want trading to make monkeys extinct.
(Suandala Respondent)

From a conservationist perspective, such statements are rather disheartening and it is clear that if the primate pet phenomenon is to be abated the conflicts between humans and primates in rural areas must be engaged and potential management strategies introduced at the grassroots level.

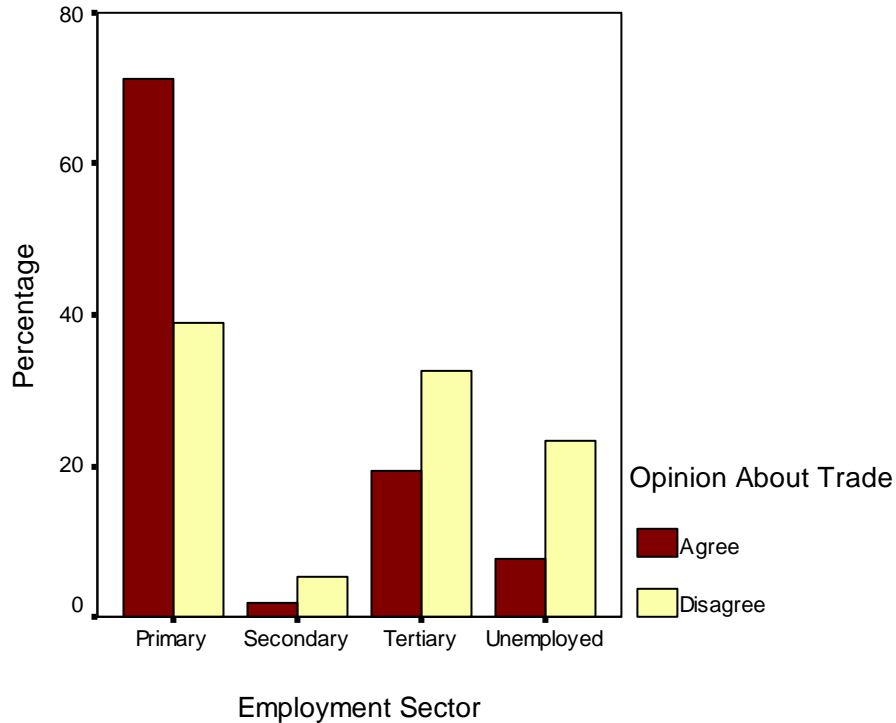


Figure 9.1 How opinion about trading is related to employment.

Conclusion

This report has endeavoured to assess the magnitude of and the attitudes towards the primate pet phenomenon in Buton, Southeast Sulawesi. Compared with previous investigations into the primate pet trade in Indonesia, this report positively highlights that trading in monkeys was not a major economic activity within the area studied. Evidence of a trade was subtle and has given little cause for concern about a commercial trade in this area at this time.

However, despite limited trade, the sheer volume of primates extracted from the forest for local pet ownership is cause for concern. 30% of those interviewed either owned or had in the past owned a primate pet and extrapolations suggest that as many as 184 primates could be kept as pets in Buton at any one time. Furthermore, trends reveal a substantial increase in primate pet ownership particularly over the last 15 years. Since previous studies suggest that even low levels of harvesting are unsustainable for most primate species, it is not unfounded to presume that the current rate of extraction is not sustainable in the long-term for *M. o. brunnescens*.

Conflict between farmers and crop-raiding macaques was identified as the main reason for the acquisition of primates to be kept as pets. Human-primate conflicts appear to becoming a prevalent issue in Buton, with competition for land resources resulting in problems for both parties. Claims of monkeys as farm destroyers may be somewhat overstated but, for a subsistence farmer, losses could be devastating. In an attempt to create a suitable management strategy for farmers to adopt that will decrease their vulnerability to crop-raiding monkeys, Priston (unpublished) is in the process of conducting research in Buton with farmers to address the problem.

Already classified as vulnerable in the IUCN Red List of Threatened Species, the *M. o. brunnescens* is more threatened by harvesting than other primate species due to its limited range. Endemic to the islands of Buton and Muna, and given that Muna is almost totally deforested; harvesting coupled with deforestation could easily lead to the population becoming extinct if the number kept as pets continues to increase. Of further concern is the introduction of alien species to the island. *M. fascicularis* were also kept as pets in the area and if they escape or are released they could spread pathogens to *M. o. brunnescens* or even establish a population in the area, competing with and preying on the native flora and fauna.

The lack of law enforcement was apparent in Buton, comparable to findings elsewhere in Indonesia. Although appropriate species protection laws do exist, they currently have a 0% enforcement rate in the area studied. Knowledge of the appropriate law was inadequate both within the communities and, unexpectedly, within government departments. It is hardly surprising that villagers continue to keep primates as pets when 69% of respondents have never been informed of the law. It is clear that the enforcement of species protection legislation must be improved, but how is this possible when rangers are a part of the community in which they reside and feel affinity with those constantly plagued by monkey crop-raiders? Turning a blind eye could in many ways be a neighbourly gesture or, more seriously, the opportunity for a bribe.

It is clear that simply enacting laws and enforcing them will not solve this issue. The multifaceted nature of the primate pet phenomenon means that a mixed conservation strategy is required if the problem is to be resolved. The aim of this investigation was not to identify potential solutions. In-depth discussions with communities would have been required and time constraints did not allow for this, but some brief recommendations can be made.

Human attitudes will in most cases decide the fate of the world's primates and changing these attitudes is the key to securing the future of these species. This is easy to suggest and incredibly difficult to put into practice; attitudes can not be changed through education programmes alone. Thoughts and beliefs are far more complex and stem from more than just misconceptions. Whilst educating communities about primate values and the importance of protecting their forest habitat should be central to any conservation strategy, the source of attitudes must primarily be addressed. In many cases this will require a deeper understanding of the socioeconomic dynamics of those threatening the primate population. From the information gleaned from interviews, human-primate conflicts and corruption must be addressed.

As the first investigation in a rural area, this report provides an overview of the primate pet phenomenon. The different aspects of the issue have been discussed but more in-depth research into each of these aspects would be beneficial to further evaluate this problem. Due to the lack of long-term population data and, indeed, a lack of long-term primate extraction data, an accurate account of the effect the primate pet phenomenon is having on wild *M. o. brunnescens* populations is not possible at this time. To gain further insight into the changing nature of the primate pet phenomenon, long term studies are vital. Although ProFauna Indonesia continually monitors primate trade at bird markets, supermarkets and shopping malls around Indonesia, long-term studies of rural sites are also required to gain insight into extraction rates and the changing local attitudes towards primates. Due to time constraints, this report can only comment on change using the memory and perceptions of interviewees. In order to gain a more reliable assessment of change over time, a long term study over a time frame of at least five years would be required.

Although there is no strong evidence of a commercial trade in Buton, the magnitude of local pet ownership and the level of harvesting could pose a threat to primate species. Currently, *M. o. brunnescens* are not considered an asset to

the community. On the contrary, they are perceived as a threat to livelihoods within the farming communities. In extreme cases, the eradication of macaques is seen as a favourable option. Perhaps more worrying, is the lack of law enforcement to prevent this.

One can only hope that a greater understanding of the law, improved farm management and a greater appreciation of the value of primates and the forest ecosystem in general, will come together to protect the valuable island habitat of Buton. After all, the continued existence of these precious forest habitats is intrinsically linked to our own survival.

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Primate Pet Trade Survey

Do you or have you ever had a primate pet? Yes (Primate Pet Owners Survey) No (Continue).

Section 1 – Demographics of Respondent

1. Name

2. How old are you?

--	--

3. Sex

- Male 1
- Female 2

4. Do you follow a particular religion?

- Muslim 1
- Christian 2
- Hindu 3
- Buddhist 4
- Animist 5
- Other 6

5. Location

6. How long have you lived here?

7. Occupation

8. Monthly income

9. Position within community

10. Position within household

Section 2 – About the Primate Pet Trade

11. Do people keep primates as pets? Are there any primates kept as pets in this village?

12. Where do they get them?

13. Do people sell them? Are there traders in this village?

14. Was it different in the past?

15. What species are traded or kept as pets?
16. Where do these species originate?
17. Are primates popular as pets? Which species is most popular?
18. Are primates ever captured in this area by villagers from this village?
19. Where and how are they captured?
20. How many primates do you believe are captured by this village each year?
21. What happens to these primates? (*Kept / sold / killed / released*)
22. How much would it cost to buy a primate in this area?
23. Where would someone looking for a particular primate species go to buy?

Section 3 – Attitudes, Motives and Opinions

24. What do you think about primates, both wild and captive? (*Do you like or dislike them?*)
25. What are the laws associated with primates?
26. Are you legally allowed to buy and sell primates?
27. Are you legally allowed to keep a primate as a pet?
28. Has anyone ever told you about the laws associated with primates?
29. Why would someone want to own a pet monkey?
30. What are your opinions about buying and selling monkeys?
31. Do you agree that primates should be kept as pets?
32. Do you believe there are any advantages / disadvantages for your community?

Primate Pet Owners Survey

Section 1 – Demographics of Respondent

1. Name

2. How old are you?

--	--

3. Sex

- | | |
|--------|---|
| Male | 1 |
| Female | 2 |

4. Do you follow a particular religion?

- | | |
|-------------|---|
| Muslim | 1 |
| Christian | 2 |
| Hindu | 3 |
| Buddhist | 4 |
| Animist | 5 |
| Other | 6 |

5. Location

6. How long have you lived here?

7. Occupation

8. Monthly income

9. Position within community

10. Position within household

Section 2 – About Primate Pet

11. How many primate pets do you or did you own?

--	--

Questions 7-17 to be asked about each primate pet.

12. What species?

13. Sex

- | | |
|--------|---|
| Male | 1 |
| Female | 2 |

Appendix 2

14. What is the current age of your primate pet or what age was it when it died?

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15. How long have you or did you have your primate pet for?

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16. How did you get your pet?

17. Where/who from?

18. How much did you pay for it?

19. Where and how was this species captured?

20. Who purchased/captured the primate and why? (Age/sex/position in household)

21. Who owns the primate (if different from purchaser)? (Age/sex/position in household)

22. How old was it when you got it?

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23. Do you prefer to keep young or adult monkeys? Why?

24. Why do you keep primates as pets?

25. Where is the monkey kept? Condition? Diet? Treatment?

26. Does it ever come into contact with wild primates?

27. How much does it cost to have a monkey as a pet?

28. Do you need a licence or permission from the government to keep your pet?

29. Have you had primates before? What happened to them?

Section 3 – About the Primate Pet Trade

30. Are there primate traders in this village?

31. What species are traded or kept as pets?

32. Where do these species originate?
33. Are primates popular as pets? Which species is most popular?
34. Are primates ever captured in this area by villagers from this village?
35. Where and how are they captured?
36. How many primates do you believe are captured by this village each year?
37. What happens to these primates?
38. How much would it cost to buy a primate in this area?
39. Where would someone looking for a particular primate species go to buy?
40. Was it different in the past? (Did more people sell / keep primates?)

Section 3 – Attitudes, Motives and Opinions

41. What do you think about primates, both wild and captive? (Do you like or dislike them?)
42. What are the laws associated with primates?
43. Are you legally allowed to buy and sell primates?
44. Are you legally allowed to keep a primate as a pet?
45. Has anyone ever told you about the laws associated with primates?
46. What are your opinions about buying and selling monkeys?
47. Do you believe there are any advantages / disadvantages for your community?

Officials Survey

1. Name

2. Sex

3. Religion

4. Department

5. Position

6. Duties of job

7. Where do you work?

8. What is the law associated with primates?

9. What are the penalties if the law is broken?

10. What usually happens?

11. How often is it broken?

12. How often is it enforced?

13. Who enforces the law?

14. Do you think the law is enforced well?

15. Do you agree with the law or do you think the law should be changed?

16. What do you think about keeping monkeys as pets?

17. What do you think about protecting the forest?

18. Do you know approximately how many macaques are being extracted?

19. Do you know approximately how many macaques are being:

- killed in farms?

- taken as pets?

20. Was it different in the past?

21. How do people get pet primates?

22. Do you think a primate pet trade exists?

23. Do people sell them? If so where? How much?

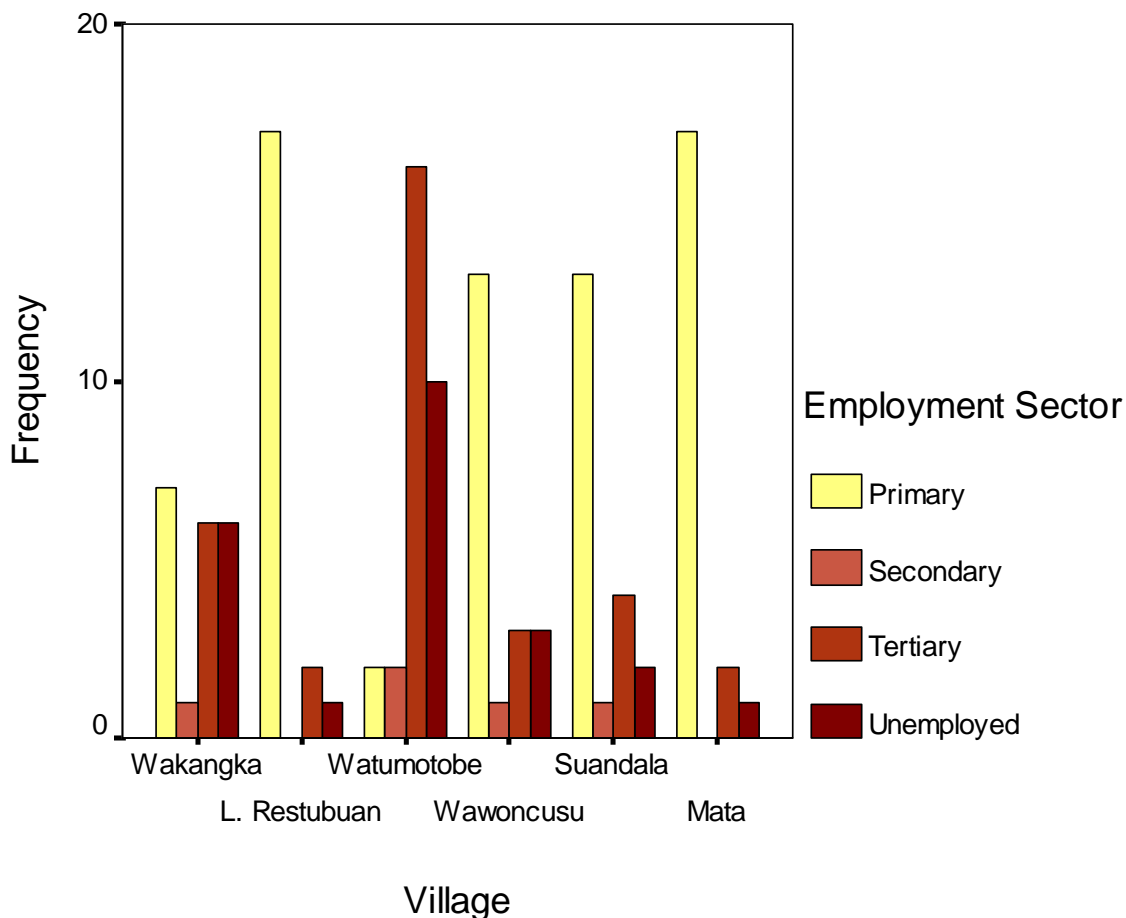
24. Do you think enough is being done to protect primates in the wild?

25. How abundant do you think wild macaques will be in 20 years time?

Village Demographic Information

Village	Income Range		Average Income
	Minimum	Maximum	Mean
Wakangka	Rp 0	Rp 1,788,000	Rp 683,412 (US \$74.70)
L. Restubwana	Rp 0	Rp 700,000	Rp 184,526 (US \$20.17)
Watumotobe	Rp 0	Rp 3,000,000	Rp 895,115 (US \$97.84)
Wawoncusu	Rp 0	Rp 1,500,000	Rp 436,900 (US \$47.75)
Suandala	Rp 0	Rp 1,600,000	Rp 247,750 (US \$27.07)
Mata	Rp 0	Rp 1,000,000	Rp 190,650 (US \$20.83)

Average monthly household income in the study villages.



Employment profiles of the study villages.

Behavioural Abnormalities

Clip 1	Escape reaction: <ul style="list-style-type: none">• This sub-adult male macaque rushes haphazardly around and repeatedly hammers on the door of the cage. Stereotypic circling and pacing is also displayed.
Clip 2	Stereotypic behaviour – Pacing: <ul style="list-style-type: none">• This sub-adult female macaque continually walks back and forth along its pole.
Clip 3	Stereotypic behaviour – Swaying: <ul style="list-style-type: none">• Or in this case swinging. This juvenile repeatedly launches itself from its perch and swings by the rope attached to its waist until its owner replaces it.