Mauritius

The trade in primates for research

BUAV
campaigning to end animal experiments

A **BUAV** investigation

CONTENTS

The BUAV is the world's leading organisation campaigning to end animal experiments. Our vision is to create a world where nobody wants or believes we need to experiment on animals. To achieve this we use all peaceful means possible to expose the reality of animal experimentation and create meaningful changes in policy worldwide.

The BUAV leads the European Coalition to End Animal Experiments (ECEAE) which works with animal groups across Europe to coordinate campaigning initiatives and ensure animals in laboratories are high on the political agenda.

As a founding member of the International Council on Animal Protection in OECD Programmes (ICAPO), the BUAV also collaborates with animal protection groups across Europe, the United States and Japan to ensure that the interests of animals used in experiments are represented within the Organisation of Economic Co-operation and Development (OECD) which co-ordinates international testing guidelines.

The BUAV has been instrumental in exposing the international trade and supply of non-human primates for the research industry. In 1992, BUAV's *Paradise Lost* was the first ever in-depth investigation of the trade in primates for research; in particular, revealing the cruelties inherent in the wild-caught trade.

The investigation and subsequent campaign played a major role in the move away from the routine use of wild-caught primates in research and thereby changing the very nature of the international trade in primates, saving the lives of tens of thousands of animals who would otherwise have perished as a result of the cruelties involved in the trapping, holding and transportation process.

Since that time, the BUAV has continued to investigate and expose the appalling misery, suffering and death that are inflicted on non-human primates for and by the international research industry.

EXECUTIVE SUMMARY

The long-tailed macaque (*Macaca fascicularis*) is listed in Appendix II of the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES). It is the most widely-traded primate species for research and, in 2010, was declared by CITES to be the most widely-traded mammal (1).

The species is widely distributed in Southeast Asia and, although adaptable, it is subject to a growing number of threats that are depleting wild populations. These include habitat loss and fragmentation, persecution by humans in urban and rural areas, and the capture and export for research.

In Mauritius, the long-tailed macaque lives freely. However, the species is not considered indigenous having been introduced to the island around four hundred years ago. Instead it is considered a “pest” and is widely persecuted.

The capture and export of Mauritius macaques has taken place since around 1985 and Mauritius is now one of the world’s largest suppliers of long-tailed macaques to the research industry. Yet despite its “pest” status, there are no efforts to eradicate the species entirely. Instead, the existing wild population is being exploited to continuously supply macaque breeding farms which have become a big industry on the island. In a cynical move, the government of Mauritius has established an “export tax” on the industry of US$75 per animal which is paid into a conservation fund (2).

Up to 10,000 primates are exported by Mauritius each year for the research industry, including around 4,000 into the EU and many thousands to the United States.

The trade is expanding on the island. There are currently four companies breeding and exporting primates. In early 2011, a fifth company was granted permission to establish a farm that may eventually hold up to 10,000 primates (3). Some of the companies are also looking to expand further overseas. There is, therefore, no evidence that this heavy dependency on wild-caught primates will cease.

Historically, this has been predominantly a wild-caught trade. In recent years however, due to international concern surrounding the trade in wild-caught primates, Mauritius has started to export captive-born (known as F1 generation or the offspring of wild-caught parents) and a limited number of captive-bred (known as F2+ generation or the offspring of parents bred in captivity) primates (4).

However, the majority of primates exported from the country continue to be wild-caught and F1 generation.

The Mauritian Cyno Breeders Association is outspoken in its opposition to move towards trading in captive-bred primates. It recently lobbied both the UK Government and the European Commission during the revision of EU Directive 86/609 (on animal experiments) which originally sought to move away from allowing the import of wild-caught and F1 generation primates into the EU (2).

The international trade in primates for the research industry is inherently cruel, largely unregulated, and involves immense suffering for thousands of animals. These animals are torn from their families and homes in the wild and either exported directly for research or bred under factory farm conditions to produce offspring who will eventually be exported themselves for research.

During 2009 and 2010, the BUAV carried out an investigation into the primate trade on Mauritius.

This report deals with the following key areas:

- **The inherent cruelty involved in the trapping of wild primates, particularly the tearing apart of family groups**
- **The continuing dependence on wild populations of long-tailed macaques to supply primates to research laboratories around the world**
- **The large-scale breeding and captivity of primates and the unnatural conditions they are subjected to inside farms**
- **Practices including the forced early separation of females from their young at 8-12 months of age and the cruel and inappropriate handling methods used by some workers**
- **The export of primates, and their transportation to Europe, the United States and Israel**
- **The suffering inflicted on Mauritian-sourced primates (and long-tailed macaques generally) within laboratories**

1. INTRODUCTION

1.1. Background Information

In 1992, the BUAV carried out the first ever in-depth field investigation into the international trade in primates for research. Documented evidence revealed high mortality rates, injuries, suffering and stress inflicted on primates during their capture from the wild, their captivity in holding and supplying facilities within a number of source countries such as Mauritius, and their transportation as cargo on passenger airlines to destinations around the world.

At that time, Mauritius had only recently emerged as a country involved in the trapping and exporting of primates. BUAV field investigators went undercover to accompany trappers. One investigator documented an incident of extreme cruelty to a wild primate who was picked up by his tail and smashed against a rock. The primate did not die outright and was subsequently taken away by the trapper (5).

The revelations of the cruelties inherent in the international wild-caught trade resulted in trade restrictions. For example, the UK Government banned the use of wild-caught primates. Furthermore, some airlines instituted embargoes on the transportation of primates.

Despite this, the trade and capture of wild-caught primates within Mauritius has continued to expand exponentially.

1.2. Conservation status of the long-tailed macaque

The long-tailed macaque is widely distributed in Southeast Asia (6).

There are concerns that numbers within this region are declining rapidly due to illegal and legal logging, traditional and modern crop plantations, land clearance for agriculture and new settlements or transmigration by people, forest fires and droughts, as well as hunting for the illegal pet trade (6) (7).

The long-tailed macaque is also vulnerable to the effects of global warming as the species is found most commonly at low elevations (8).

Conflict between humans and wildlife is a growing issue of concern for local people and governments alike. Macaque-human conflict in urban and rural areas is becoming problematic due to human overpopulation and encroachment of the macaques' habitat. The long-tailed macaque in particular is often regarded as a "pest" species due to its preference for feeding on crops in cultivated fields (9).

The capture of the species for research poses an additional threat and has already impacted on wild populations. Whilst breeding facilities and exports of long-tailed macaques are increasing at an alarming rate in some countries such as Cambodia, other countries have banned the export trade in macaques. Trappers steadily deplete the genetic diversity of wild populations and cause social disruption for the remaining individuals, which can impact negatively on reproductive success.

Although the long-tailed macaque is listed in Appendix II of CITES, which states that it is '*not necessarily now threatened with extinction but it may become so unless trade is subject to strict regulation*' (10), some primatologists are questioning the conservation status of the species (11) (12) (13).

One recent study concluded that data are deficient for wild populations of the long-tailed macaque in the Indochinese region, particularly in Cambodia, and concluded that '*it is imperative that the conservation status of M. fascicularis be reassessed, particularly taking into account the impact of trade on the species, requiring as such a careful assessment by the CITES Secretariat*' (8).

1.3. Long-tailed macaque habitat

The long-tailed macaque lives in a range of habitats but prefers forested areas near water, including mangrove and swamp forests from sea level up to elevations of 2,000 m (or 6,561 ft).

The species is semi-terrestrial and omnivorous. It is an excellent swimmer and found in higher densities near riverbanks, lakeshores, or along the seacoast.

The species lives in multi-male and multi-female groups of 6 to 58 individuals. Females remain in family (natal) groups for life, characterised by a strong social order revolving around the female kinship where rank is passed on from mother to daughter. Males leave their family groups with others of their peers before sexual maturity, usually between four and six years of age (14).

1.4. The trade in wild-caught macaques

The capture of macaques from the wild inflicts substantial suffering on them and is inherently cruel. Macaques are intelligent and highly social animals whose welfare and sense of well-being are strongly and inextricably dependent on intact family and social structure. Removal of individuals from groups results in fractured families and social bonds. It causes extreme stress and distress for those taken as well as those left behind, the effects of which can last indefinitely.

It has been the BUAV's experience, during investigations in a number of different countries, that trappers demonstrate little or no regard for the primates who are viewed either as unwanted "pests" or simply as a source of income. It is not uncommon for primates to be injured or killed during trapping.

The substantial negative impact caused by trapping and removal of wild primates from their natural social groups is universally recognised by relevant organisations and official bodies.

'*Endangered, vulnerable and rare species be considered for use in biomedical research projects only if they are obtained from existing self-sustaining captive breeding colonies (i.e. in captive breeding, all animals are required to be at least F2 generation)*'.
World Health Organisation (15)

'To discourage the use of wild-caught animals, the biomedical community should only accept captive-bred animals that are of the second or higher generation bred in captivity as being classified as 'purpose-bred'. This would help to prevent the use of wild-caught animals as breeders and support the effort to eliminate early weaning systems'.
Scientific Committee on Animal Health and Animal Welfare (16)

'Capture of wild primates for use as breeding stock or for export for use in experiments has been identified as a particular cause of concern because of the additional distress caused to the animals … The UK should move toward a position where it will only accept as 'purpose bred' animals of the second (F2) or subsequent generations bred in captivity'.
Home Office Animal Procedures Committee — Primates Sub-Committee (17)

'*Trapping wild primates can cause significant distress, suffering and physical injury*'.
European Union Committee Sub-committee (18)

'*Where it is necessary to import primates from breeding establishments overseas; the Home Office must agree the source. Ideally these should be second-generation animals to avoid use of wild-caught animals as breeding stock'*.
National Centre for the Replacement, Refinement and Reduction of Animals in Research (19)

'Sound animal welfare and scientific reasons exist for using captive-bred primates in preference to wild-caught primates, and institutions that currently trap from the wild should adopt policies to decrease reliance upon wild populations. Trapping quotas can be reduced by retaining a significant and increasing proportion of first generation offspring for breeding second-generation stock'.
International Primatological Society (20)

2. MAURITIUS

2.1. Status and trade of the long-tailed macaque

Mauritius was the first country in the world to ratify the Convention of Biological Diversity (21) and it became a Party to CITES in 1975.

The National Parks and Conservation Service (NPCS) of the Ministry of Agro-Industry and Fisheries is the CITES Management Authority of Mauritius. Some 1,700 permits are issued each year by the NPCS for the export, re-export or import of listed animals and plants (22).

Mauritius is also a member of the *International Union for Conservation of Nature* (IUCN).

The long-tailed macaque is not considered a native species on Mauritius (i.e. it is living outside its native distributional range and has arrived there by human activity). It is perceived as a threat to biodiversity and considered to be an agricultural "pest."

The IUCN has listed the long-tailed macaque as one of the world's '*100 Worst Alien Invasive Species*' (23). This has exacerbated its negative portrayal globally.

This has led to its widespread persecution and exploitation. Despite being well-established on Mauritius for about 400 years, people generally do not feel that the species should be afforded conservation efforts. As a result few, if any, will speak out against the widespread trapping on the island.

Thousands of long-tailed macaques are killed or captured for the research industry each year – promoted erroneously as a means of population control.

Trapping, however, only provides a short-term solution to the problem and has been shown in other countries to have no substantive impact on the number of primates because it stimulates an increase in reproduction when food and habitat continue to be available. The failure of trapping or killing primates as a means of population control was exemplified in Barbados where 10,000 vervet primates (*Chlorocebus aethiops*) were trapped or killed over a 14 year period. Despite this, there was no reduction in crop-raiding and the population remained stable (24).

If control of the Mauritius long-tailed macaque population is deemed necessary, though the government does not appear particularly committed to this, there are humane and effective methods of control - including the sterilisation of females.

Despite claims that trapping for research plays a key role in population control on Mauritius (25), a memorandum addressed to the UK Parliament in 2009 by the Mauritian Cyno Breeders Association and a major primate exporting company, Noveprim, contradicts this claim. It states that the export of the species to laboratories and biomedical research institutions has had no impact on population reduction (2). It is asserted that '*there is no evidence that the Mauritian population is in decline, nor does it appear to suffer numerically from the current rate of trapping*' (2). As a point of fact, however, this statement is not based on any empirical evidence as there has been no population survey of the long-tailed macaque carried out in Mauritius since 1994. Nevertheless, it seems clear that the industry is using specious arguments in an attempt to support this brutal trade.

Although quick to point to the impact of this *"…very destructive animal"* on the native fauna and flora of the island and agriculture (25), the Mauritian primate supply companies claim there is "*…no desire…to eradicate the primates*" (2).

It is apparent that there is an economic incentive for the companies dealing with the trapping and breeding of long-tailed macaques on Mauritius to keep the species thriving on the island. The companies' statements in the 2009 memorandum (2) are filled with contradictions that boil down to a desire to maintain a wild population.

Despite their contradictory claims that trapping activities assist locals by keeping the long-tailed macaque population in check, the industry undoubtedly benefits from maintaining a wild population so that the lucrative business of trapping and selling primates can continue.

Primate breeding and supply companies apply for CITES export permits through the NPCS.

According to the Mauritius National Biodiversity Strategic and Action Plan 2006-2015, an annual export quota of 8,000 wild-caught long-tailed macaques has been issued by the Ministry of Agro-Industry & Fisheries (26). In addition to these, captive-born and captive-bred primates are exported. A contribution of US$75 per animal exported is credited into the National Parks and Conservation Fund.

Two of the largest companies in Mauritius that supply long-tailed macaques to the international research industry are Noveprim and Bioculture. Both companies export primates directly for research, and also to breeding and supply farms in other countries. Primates from Noveprim are exported to a farm in Spain, and Bioculture exports primates to BFC Israel. Bioculture has also been involved in trying to construct a breeding facility in Puerto Rico and in 2011 reported plans to expand further by setting up a farm in the United States (27).

Despite the widespread opposition to the trade in wild-caught primates, and the recognition of the cruelty it inflicts, the Mauritius Government not only continues to allow the capture of wild primates for export and breeding purposes but has also granted permission for the trade to expand. There are currently four companies operating farms, one of which has recently been granted permission to expand its facilities (Biodia) (28), and in 2011, a fifth company was approved to establish a new facility—Prima-Cyno (29)

The high volume of captive-born primates who are coded 'F', and wild-caught primates coded as 'W' exported from Mauritius indicate that the farms are not self-sustaining and that breeding animals are simply replenished from the wild. Companies may claim to replenish their breeding "stock" with wild-caught animals for genetic diversity; however this is not a valid reason from a scientific perspective where the aim is to reduce the number of variables likely to affect the experimental results.

The true reason for obtaining wild-caught primates for breeding is likely to be profit motivated. A female long-tailed macaque does not reach sexual maturity until around four to five years of age. This means that captive-born females would need to be housed and fed for those four to five years before producing offspring.

Mature wild-caught primates however, could produce offspring within a year, substantially reducing the expense and increasing the profit associated with this.

One of the many primate farms on Mauritius

2.2. Mauritius — A major global primate exporter

According to the CITES Database, between 2004 and 2008, Mauritius was the second largest exporter of long-tailed macaques globally (China was the largest), exporting over 40,000 animals to the EU (including the UK, France, Italy, Germany, Belgium and Spain), the United States, Israel and Mexico (30). See Table 1.

	Total Number of Exports from Mauritius					
Country	**2004**	**2005**	**2006**	**2007**	**2008**	**Total**
Belgium		75				75
France	1880	1948	681	310	615	5434
Germany	280	350	423	56		1109
GB	1427	1306	925	522	1200	5380
Israel*	8	130	140	92	92	462
Italy	120					120
Mexico		70	66			136
Spain		960	1180	1963	2456	6559
Singapore				35		35
United States	4695	4606	4377	3802	4486	21966
Total	8410	9445	7792	6780	8849	41276

* In January 2011, Israel Environment Minister Gilad Erdan announced new restrictions to be placed on the import and export of primates which will include a ban on the import of wild-caught individuals. These restrictions will impact BFC Israel which regularly imports wild-caught primates from Mauritius.

Table 1: Total number of long-tailed macaques exported from Mauritius for commercial, breeding, medical and scientific purposes between 2004 and 2008. Information based on permits issued by importing countries (30). Figures for Israel

2.2.1. The export of primates from Mauritius to the United States

The United States is the largest importer of primates from Mauritius. In 2009, according to the Fish & Wildlife Department (31), a total of 3,179 long-tailed macaques were imported into the United States from the four Mauritian companies. The majority of these were sourced as 'F' code (known as F1 generation or the offspring of wild-caught parents), some were sourced as 'W' (wild-caught), but none were sourced as 'C' (captive-bred). Importing companies in the United States include Covance, Charles River and Worldwide Primates.

Imports have fluctuated over the years. In 2006, 4,377 macaques were imported into the United States (see Table 2). In just one day (7 August) in 2006, Bioculture exported a shipment of primates totalling 1,168 individuals to Charles River (32). Similarly, in the same year, Noveprim exported 2,050 macaques to Covance. This consisted of just two shipments, on 20 February and 21st August.

On 20 February 2006, 1,000 macaques (including 400 who had been captured from the wild) were exported, and on 21 August, 1,050 macaques. In the latter shipment, the primates were transported in 210 wooden crates by a charter flight, Air Transport International. They were flown to Houston, Texas via Gander Airport in Canada. The majority of these primates were between just 18-21 months old; a few were only 17 months.

Table 2: Number of long-tailed macaques exported from Mauritius to the United States for commercial, breeding, medical and scientific purposes between 2004 and 2008, and source codes used. Information based on permits issued by importing country (30)

USA Imports: Source Codes					
Year	**Total Imports**	**F**	**%**	**W**	**%**
2008	**4486**	4232	94.3	254	5.7
2007	**3802**	3354	88.2	448	11.8
2006	**4377**	3582	81.8	795	18.2
2005	**4606**	3631	78.8	975	21.2
2004	**4695**	3685	78.5	1010	21.5

2.2.2. The export of primates from Mauritius to the European Union

Each year, Mauritius exports around 4,000 primates to the EU, including the UK, France, Italy, Belgium and Spain. Noveprim reportedly supplies 60% of this total (2).

In recent years, the UK, France, Germany and Spain have emerged as the largest EU importers of primates (see Tables 4 to 6). Long-tailed macaques from Mauritius are predominantly sourced as 'F' code, which includes the trade in the offspring of wild-caught primates, but Spain, Germany and France have all imported wild-caught primates in recent years. Since 2006, Spain has been the largest EU Member state importer of primates from Mauritius.

The import and export of primates between the EU Member states, however, does not require a CITES permit, so it is impossible to accurately assess the extent of onward trade within the EU.

Recent proposals by the European Commission to ban the import of wild-caught primates into the EU and move towards the import of only captive-bred animals were vigorously lobbied against by the European primate research industry and the Mauritian Cyno Breeders Association.

The proposals were subsequently dropped from the final revision. Yet, a ban on wild-caught and 'F' sourced primates would at least address some of the welfare concerns of this trade. As long as the EU continues to allow 'F' sourced primates to be used, wild populations will continue to be plundered.

There is little incentive for supply companies to move towards self-sustaining captive populations whilst F1 primates continue to be purchased.

The EU is a large user of primates for research and would, therefore, have a major influence on persuading supply companies to switch to F2+ generation primates.

Restrained primate at Covance laboratory, Germany

In 1995, following the BUAV's 'Paradise Lost' campaign to end the wild-caught primate trade, the UK Government announced a ban on the use of wild-caught primates in research (except in exceptional circumstances). However, primates born to wild-caught parents and those exported from farms which trap wild primates for breeding purposes continued to be allowed into the UK.

Between 2004 and 2008, 4,780 (around 88%) of the long-tailed macaques imported into the UK from Mauritius have been sourced as 'F' and only 600 (around 11%) were sourced as captive-bred (see Table 3).

In 2009, 2,215 long-tailed macaques were imported into the UK; 1,257 were the offspring of wild-caught parents (33). In 2010, the total number imported was 1, 284, of which 1, 256 were the offspring of wild-caught parents (34).

In February 2009, in response to parliamentary questions, the then UK Parliamentary Under-Secretary of State for the Home Department, Meg Hillier stated: *"Since 1997, we in the UK have not been accepting wild captured animals, only using captive-bred ones—that is F1—and some F2"* (34)

Although the UK Government banned the use of wild-caught primates as a matter of policy, because of the additional suffering caused by trapping, this achieves very little if the offspring of wild-caught primates and those from farms that use wild-caught animals for breeding can still be imported. The British public is misled into thinking its government has taken a principled position against the involvement of wild-caught primates in research when the reality is very different. By allowing the importation of these individuals, the UK is fuelling the capture of thousands of long-tailed macaques from the wild. In recent years, both Bioculture and Noveprim have exported primates to the UK.

UK Imports: Source Codes

Year	Total Imports	F	%	C	%	W	%
2008	**1200**	1050	87.5	150	12.5		
2007	**522**	492	94.2	30	5.75		
2006	**925**	869	93.9	56	6.05		
2005	**1306**	1091	83.5	215	16.5		
2004	**1427**	1278	89.6	149	10.4		

France Imports: Source Codes

Year	Total Imports	F	%	C	%	W	%
2008	**615**	331	54			284	46.2
2007	**310**	117	37.7			193	62.2
2006	**681**	391	57.4			290	42.6
2005	**1948**	1610	82.6			338	17.3
2004	**1880**	1518	80.7	80	4.25	282	15.0

Germany Imports: Source Codes

Year	Total Imports	F	%	C	%	W	%
2008							
2007	**56**					56	100
2006	**423**	423	100				
2005	**350**	300	85.7			50	14.3
2004	**280**	280	100				

Spain Imports: Source Codes

Year	Total Imports	F	%	C	%	W	%
2008	**2456**	2456	100				
2007	**1963**	1963	100				
2006	**1180**	1140	96.6			40	3.4
2005	**960**	960	100				
2004							

Tables 3 — 6: Numbers of long-tailed macaques imported into the EU from Mauritius for commercial, breeding, medical and scientific purposes between 2004 and 2008, and source codes used. Information based on permits issued by importing countries (30)

3. BUAV FINDINGS

The investigation took place between 2009 and 2010. The BUAV field team documented observations, and obtained video footage and photographs.

3.1. Cruelty in the Trapping Fields

There are widespread concerns regarding the cruelty and suffering involved in the trapping of wild primates. It has been the BUAV's experience that trappers demonstrate little or no regard for the primates who are viewed either as unwanted "pests" or simply a source of income.

In Mauritius, trapping takes place between July and November when natural food resources for the macaques are limited. Traps, baited with bananas and sugar cane, are set up around the forest perimeters. They range in size from large traps, where whole groups may be caught at a time, to small traps that catch only one or two individuals. Wooden traps suspended over food bait may also be used.

BUAV investigators found that some traps are left baited, but unattended. Primates may therefore remain in traps for long periods of time - an extremely stressful situation for any wild animal.

BUAV investigators were told by the trappers that primates can sustain injuries and broken limbs during trapping and transferral to transit cages. One trapper caught primates by grabbing them by the tail and swinging them. This is a cruel and inappropriate way to treat primates. Furthermore, the long-tailed macaque does not have a prehensile tail, so such handling could result in injury, including the separation of vertebrae in the tail leading to considerable pain and debilitation.

Traps like these are used to capture primates

This cruel method of capture is a clear breach in the animal welfare guidelines of the International Primatological Society (IPS):

"The capture of primates from the wild is challenging and potentially dangerous for the animals. Inexperienced handling can lead to significant morbidity and mortality for the animals.

Methods used to capture and handle primates, which vary widely between species and countries, should always be humane and cause minimal stress. Institutions should ensure that anyone trapping primates is adequately trained and competent in humane methods of capture. The practice of 'mother-killing' to obtain infants is unacceptable. Capture methods should not render animals, or their troop members, unduly susceptible to injury or death. Animals should not be captured in traps likely to produce injury or left in traps for any period likely to cause harm or distress" **(20).**

BUAV investigators found that although some trappers take wild-caught primates directly to breeding and supply farms, others may keep them on their premises which act as holding facilities. One such trapper, who was working for Noveprim at the time, held primates for days in a small, dark, dilapidated shed in his garden.

At the time of the investigation, the trapper had one young male in a small, bare wire cage inside the shed. The animal was clearly terrified, yet the trapper routinely removed him from the cage and tormented him by picking him up and swinging him around in the air by the tail. This particular primate also had injuries to his forehead.

In its submission to the UK House of Lords on 6th May 2009 (36), Noveprim stated:

"Noveprim observes the highest standards of care for the welfare of animals."

The behaviour by one of its trappers shows that this is clearly not the case and raises concerns about the behaviour and attitude of other trappers during the catching, handling and holding of wild primates.

Primates were kept in this shed by one trapper

A cage used to hold wild primates

3.2. Holding and breeding facilities

Primates share many important characteristics with humans. They are intelligent and highly-evolved animals with complex behavioural and social needs; needs that are not met inside breeding farms and laboratories.

They are essentially wild animals and do not adjust well to captivity.

In Mauritius, thousands of primates are housed in concrete pens on large farms.

Although plastic barrels and other items were provided as 'enrichment' on farms seen by the BUAV investigators, the pens were devoid of any trees or other foliage. This unnatural environment is a sharp contrast to the wonderful lush habitat of the forests that surround the primate farms and which is their natural home.

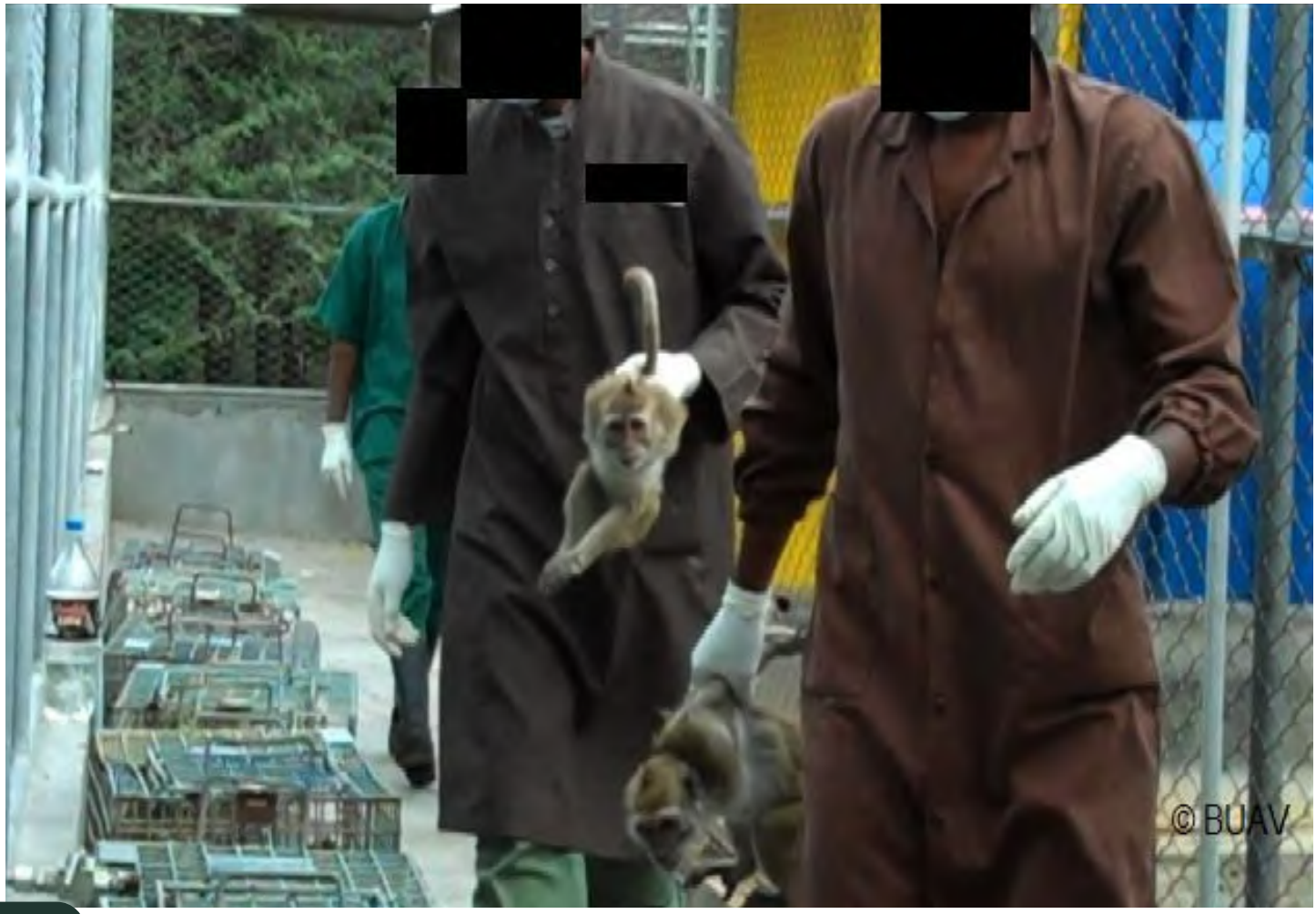
Macaques live in closely-knit structured societies; captive housing cannot enable the animals to retain the social structure that would be present in their natural troop. Nor does the cramped, bare and artificial conditions within the farms provide the freedom of movement and choice of activity that is so important to the well-being of these individuals.

Additional stress may be caused if primates are housed in a confined space with an unfamiliar social group. Routine procedures such as catching and handling by humans, forced restraint, injections, or repeated blood sampling can cause great anxiety and stress for these animals.

Footage obtained from inside one facility belonging to Bioculture shows the extremely stressful and potentially dangerous methods (for primates) of capture used. Primates, frantic in their attempts to escape, were grabbed and pulled by their tails from pens and transferred to cages prior to export.

Primates kept in concrete pens on Mauritius

Capture and handling of primates inside a facility belonging to Bioculture



3.3. Separation of female macaques from their young

On Mauritius farms, infant macaques destined for research may be removed from their mothers at a young age – usually between 10-12 months old, although it has recently been reported that this may occur as young as 8 months (37).

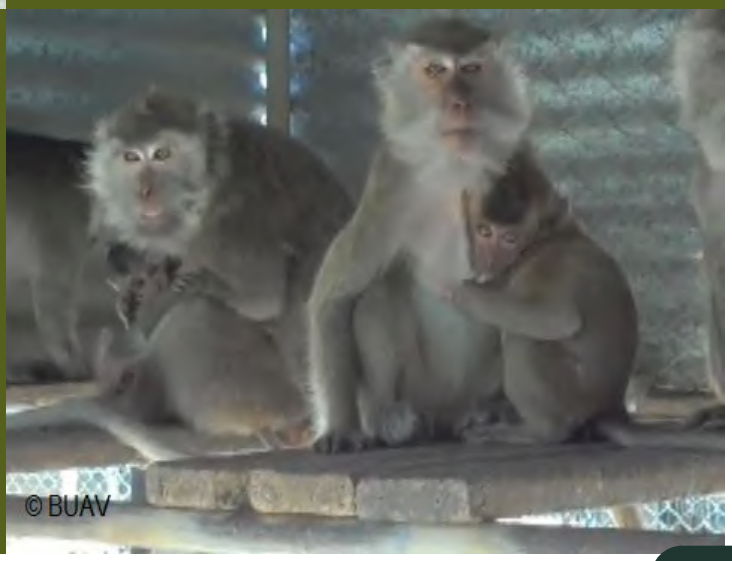
In the wild, long-tailed macaque mothers are the primary caregivers for their newborn infants and are very protective of them, not allowing infants out of their grasp (38). They wean their babies at around 14 months, but continue to have intimate contact for years well beyond this. Females remain in their family groups for life and males remain at least until four years of age.

Natural weaning is a gradual process.

Forcibly separating infants from their mothers is an extremely distressing experience for both the mother and infant, and one of the cruellest treatments to which primates can be subjected to. It results in a psychological trauma for the infant that is long-lasting, perhaps even permanent.

Infant primates, unlike the offspring of many other mammals, have a long period of dependence and development which requires an extended period of maternal care.

It has been stated that "S*trong social bonds must be established and maintained in order for an infant to develop well physically, cognitively and socially*" and "*…. a deep interconnectedness lasts throughout the period of infancy and well into juvenile and sub adult stages in some species.*" (39).



3.4. Transportation of primates

Previous research and investigations by the BUAV into the international primate trade have shown that animals suffer long journey times by road and air in small wooden crates that leave little room for the animals to even turn around. They may also endure inadequate ventilation, noise, extreme temperature fluctuations and delays en route.

Statistics for primate deaths and illnesses either during transportation or subsequently are generally not publicised. However, examples of primates being found dead on arrival, often as a result of distress and shock due to the conditions on board airlines, have been documented from around the world (40). Once on the ground, the animals are trucked to animal supply companies and laboratories for quarantine. In some countries, such as the United States, this can take several days.

Studies carried out by scientists from within the research industry itself have shown that transportation causes profound negative and lasting effects on the welfare of primates. The long-tailed macaque in particular has been identified as a species unsuited to transport (41) (42) (43).

Whilst many airlines have stopped transporting primates destined for the research industry, others continue to ship them around the world. Air France is a major airline that transports primates from Mauritius, including those individuals taken from the wild. Large shipments of primates have also been transported by cargo charter planes.

One study involving long-tailed macaques and the effects of international air transport, showed that "*changes in behaviour occurred, which reflected heightened levels of stress….*"

The abstract reads as follows:

"*More long-tailed macaques (Macaca fascicularis) than any other primate are imported into the UK for research, and journey times may be of up to 58 h. This paper reports the results of a study of behavioural changes in a group of long-tailed macaques transported by air from standard breeding conditions and then re-housed in standard laboratory primate conditions. The animals were studied prior to their departure, immediately after their arrival, and 3 weeks after that… Changes in behaviour occurred which reflected heightened levels of stress in the study group. It was also clear that although there was some adjustment of behaviour, after an initial change on arrival at the new establishment, there was no return to levels observed at the breeding facility within the first month. This study demonstrates that, as a whole, the process of international air transport and re-housing in laboratory conditions may result in the compromising of the welfare of the study animals*" (42).

Recent examples of Air France shipments include:

- **On 29 January 2009, Air France transported 72 wild-caught primates from Bioculture in Mauritius to Worldwide Primates in the United States**
- **On 3 September 2009, Air France transported 120 F1 generation primates from Noveprim in Mauritius to Covance Research Products in the United States**
- **On 17 December 2009, Air France transported 43 wild-caught and 68 F1 generation primates from Biodia in Mauritius to Charles River Laboratories in the United States**

Primates are transported in crates like these

Furthermore, documentation obtained by the BUAV shows that cargo charter flights containing shipments of many hundreds, sometimes even a thousand or more, macaques have been exported from Mauritius to the United States:

● *On 15 August 2005, 760 macaques (including 210 who had been captured from the wild) were flown by charter flight, Air Transport International in 178 wooden crates to Charles River in the United States via Rome in Italy, and Gander in Canada before landing in Houston, Texas.*

● *On 21 August 2006, 1,050 macaques were imported from Noveprim into the United States by Covance. The primates were transported in 210 wooden crates by Air Transport International. They were flown to Houston, Texas via Gander airport in Canada. The majority of primates in the shipment were aged between 18-21 months old, and a few were just 17 months.*

The BUAV has also revealed that primates as young as 14 months have been exported from Mauritius. For example, on 14 December 2006, Air France transported 118 macaques from Bioculture to Charles River in the United States. In this shipment, at least one young primate was recorded as being less than 14 months (412 days) old.

4. PRIMATE EXPERIMENTS

It is estimated that worldwide more than 100,000 primates are used annually in research; the United States, Japan and Europe are the main users of these animals.

The standard and vast majority of the housing inside research laboratories are comprised of small, barren, steel cages with no meaningful enrichment or opportunities for socialisation.

With little opportunity for mental stimulation and physical exercise, these animals almost always develop abnormal and self-destructive behaviours including pacing, rocking, swaying, bar-biting, and self-mutilation.

4.1. European Union

Each year, over 10,000 primates are used in experiments across the EU. Mauritius is a major supplier of primates to the European research industry.

The long-tailed macaque and rhesus macaque (*Macaca mulatta*) are the most frequently used primate species for research in the EU (44).

Research includes toxicological (poisoning) tests that can last for months, even years, where primates may be regularly dosed with chemicals or drugs through injection or forced ingestion. Primates are also used in research which may include deliberately inflicting brain damage and the implantation of electrodes.

The United Kingdom

In the UK, the use of Old World primates (which includes the long-tailed macaque) increased dramatically between 2007 and 2008 – an increase of 23%, or 3,092 primates.

The more recent 2009 Home Office statistics report a decrease in the number of procedures using Old World primates by 14 per cent, although these figures have fluctuated around a sharp upward trend in the use of primates over the last few years (44).

The following are recent experiments carried out and published in the UK involving long-tailed macaques. The origin of the majority of the animals was not revealed.

National Institute for Biological Standards and Control (NIBSC), Hertfordshire

Eighteen young long-tailed macaques, including some from Mauritius, were inoculated with a test vaccine and then later “challenged” with the simian immunodeficiency (SIV) virus. The primates were subjected to repeated episodes of blood drawing until they were killed after about six months (45).

University of Oxford

Six long-tailed macaques were "trained" to perform tasks and then subjected to surgery during which parts of their brain were destroyed. After recovering from this mutilation, the primates were then subjected to various tests. When the tests were complete, the primates were killed (46).

University College London (UCL)

Fifteen young long-tailed macaques were anesthetised and then paralysed with a drug that would prevent them from moving even if they were feeling pain. Their skulls were opened and electrodes were implanted in their brains. They were kept under these conditions (continuously paralysed and anesthetised) for up to five days whilst various tests were carried out. When the tests were complete, the primates were killed (47).

Institute of Neurology, London

One long-tailed macaque and one rhesus macaque were "trained" to perform tasks. They were subjected to surgeries to implant electrodes into their brains and various muscles.

Testing was then carried out. During the procedures the primates were restrained so that no movement could occur. Weak electric shocks were delivered through the brain electrodes to cause various stimulations. After testing in a conscious (i.e. awake) state, the primates were anesthetised again and further testing was carried out after which the animals were killed (48).

France

Institute of Emerging Diseases and Innovative Therapies, Fontenay-aux-Roses

The liquidised brains of cows or people with mad-cow disease were injected directly into the brains of seven long-tailed macaques from Mauritius. They suffered from severe muscle tremor, lack of co-ordination, complete loss of appetite and became aggressive and anxious. All of the primates were killed when they lost control over their bodies - after several months of suffering (49).

Institute of Emerging Diseases and Innovative Therapies, Fontenay-aux-Roses

Eighteen long-tailed macaques from Mauritius were infected with various doses of the Chikungunya virus. They suffered the effects of the disease in order for researchers to compare the development of it with human data. The primates developed fever, severe rash and gum bleeding, some of them died as a result (50).

Germany

Leibniz-Institut für Neurobiologie, Magdeburg

Three long-tailed macaques were used in a series of experiments in an attempt to analyse their hearing and sensitivity to tones played in various combinations.

A metal 'helmet' was permanently attached by steel bolts to their skulls. Parts of their skulls were removed in order to implant a recording device to record activity associated with hearing. The animals were held in a restraint device for several hours and exposed to noise while their brain activity was recorded by the electrodes (51).

Spain

University of Navarra, Pamplona

Five long-tailed macaques were injected with a neurotoxin, (MPTP), to artificially induce signs of Parkinson disease (by destroying neurons in the brain). They suffered tremors, poor balance and coordination. The animals were then given the experimental treatment (either in water or via injection). Several months later, the primates were subjected to brain surgery in which parts of their brains were destroyed. They were killed several weeks after the surgery (52).

Italy

National AIDS Center, Istituto Superiore di Sanita, Rome

Three long-tailed macaques from Mauritius were infected with a modified strain of the SHIV - a combination of HIV and SIV. Each individual reacted differently; one had to be killed after four weeks because of severe illness. The virus from the blood of one of the surviving primates was used to infect a further twenty-two. Twelve of those had to be killed because they became ill and one other was reported to have died for other reasons. Most of the animals suffered substantial damage to the immune system (53).

Dipartimento di Fisiologia Umana e Generale, Universita` di Bologna, Bologna

Two long-tailed macaques were used in an experiment that examined the function of certain brain pathways when they grasped different-shaped objects. To measure the activity of brain cells, electrodes were implanted into the brains of the primates and a head restraint-system fixed into their skulls. They were then placed in a restraint device in front of a computer screen and made to repeatedly perform tasks (54).

4.2. United States

Mount Sinai School of Medicine, New York

Five long-tailed macaques and two rhesus macaques were surgically operated on three times: first to implant a head mount onto the skull, second to dissect the eye to implant search coils, and third to destroy part of their ear canal. For the experiment, the animals were strapped to restraint chairs and their heads were further immobilised by use of the implanted head mount. Their bodies were then rapidly "oscillated" (forced into a rapid shifting of position like a paint can shaker) and recordings made. The fate of the primates after the experiment was not stated (55).

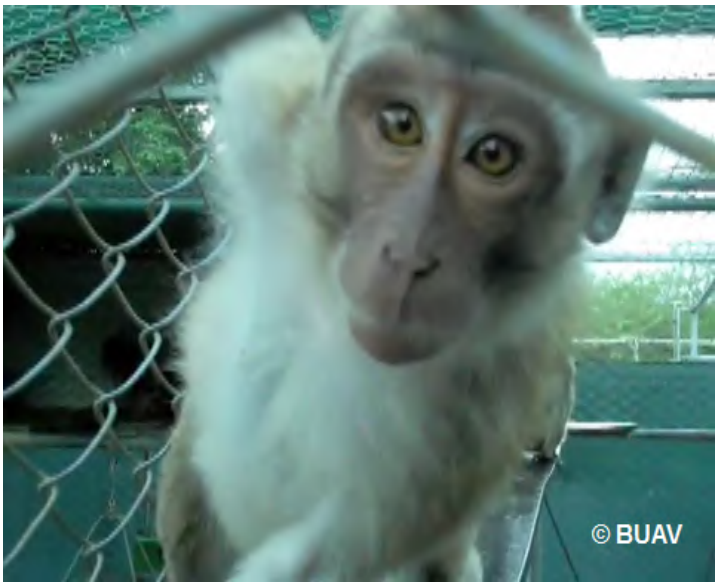
Wake Forest University School of Medicine, North Carolina

Seventeen long-tailed macaques were "trained" to perform certain tasks using food rewards. The "training" and testing were apparently done with the primates held in restraint devices. Ethanol was forced into them during the testing via a tube inserted through their nostrils, and down into their stomachs. Various tests were done while the primates were restrained. The fate of the individuals was not stated (56).

University of Pittsburgh, Pennsylvania

Twenty-four wild-caught long-tailed macaques were used. The primates were "trained" to run on a treadmill within a cage and sometimes forced to run until they could no longer keep pace. Their hearts were monitored telemetrically (a device implanted into their bodies). At the end of the experiment, the primates were killed and their brains studied (57).

5. CONCLUSION



The BUAV is concerned about the suffering involved in the trapping of wild primates, the trade in captive-born animals and the conditions in which primates are held in captivity on farms across Mauritius.

Despite the serious animal welfare concerns and cruelty surrounding the trapping of primates from the wild, the Mauritius Government continues to allow the export of thousands of wild-caught primates and their offspring each year.

Those countries that import primates from Mauritius perpetuate this cruelty.

Mauritius justifies this wild-caught trade on the grounds that the long-tailed macaque is not native, is a “pest” and, therefore, not deserving of conservation concerns. Yet, despite the claims surrounding this “pest” status, there are no efforts to eradicate the species entirely. Instead, the existing population is allowed to reproduce freely so that it can be exploited to continuously supply macaque breeding farms which have become a big industry on the island. The government of Mauritius has even established an “export tax” of US$75 per animal which is paid into a conservation fund; an apparent attempt to offset any criticism.

There has been much evidence accumulated over the years by the BUAV revealing the immense cruelty and suffering that is inflicted on primates during their capture, caging, holding and transportation to breeding and research facilities. This latest BUAV investigation provides yet further evidence of this. The BUAV does not believe that the continued exploitation and suffering inflicted on primates for research is justified.

We call on the government of Mauritius to take immediate action to put an end to this brutality by banning the trapping and export of its primate population. We also call upon those countries that purchase macaques from Mauritius to dissociate themselves from this cruelty by banning their import.

6. SUMMARY OF THE BUAV'S INTERNATIONAL PRIMATE TRADE INVESTIGATIONS

In 1992, BUAV's Paradise Lost was the first ever in-depth investigation of the international trade in primates for research. The BUAV followed the chain of supply from the capture of wild primates in source countries such as Indonesia, the Philippines and Mauritius, through to their shipment and holding at Shamrock (GB) Ltd., which at the time was Europe's largest primate supply company. What emerged was a shocking and disturbing account of the suffering and death inflicted on primates destined for the international research industry. Images never before captured on film revealed the brutality and cruelty inflicted on primates during their capture, caging, transportation, holding at Shamrock and eventual death in the laboratory.

Major findings included:

- **High mortality rates of primates trapped in the wild. As many as 8 out of every 10 primates captured died before reaching the laboratory**
- **Cruelty inflicted on primates during the trapping process**
- **Appalling conditions at holding centres in source countries**
- **Suffering and losses inflicted on primates travelling as cargo on passenger airlines**
- **High illness, disease and mortality rates of imported primates from source countries arriving at UK primate supply company Shamrock**
- **Poor conditions, mistreatment and the desensitised attitudes of staff at facilities in the UK**

Since the launch of Paradise Lost, the BUAV has continued to investigate and monitor the international trade in primates for research. Among the other investigations that have taken place are:

- **The trade in wild-caught African green monkeys (*Chlorocebus aethiops*) on the Caribbean islands of Barbados and St Kitts. Findings included the use of cruel methods of capture and poor holding conditions in which singly housed primates were kept in small wire or wooden cages.**
- **The trade in wild-caught baboons from Tanzania (*Papio anubis*). Findings included the appalling conditions in which wild-caught baboons were held prior to export. Baboons were kept in rows of small, dilapidated wooden crates on a rundown site.**
- **The trade in long-tailed macaques from Vietnam. Findings included the industrial-scale breeding of primates. Primates were housed in poor conditions which breached the animal welfare guidelines of the International Primatological Society.**
- **The trade in long-tailed macaques from Cambodia. Findings included the cruel methods used to capture wild primates and poor conditions at farms, both of which breach the animal welfare guide lines of the International Primatological Society. Concerns are also raised about the validity of captive-breeding claims and compliance with CITES regulations.**
- **The trade in long-tailed macaques from Indonesia. Findings included the cruelty inflicted on primates during their capture and confinement, and the failure of the country to enforce its ban on the export of wild-caught macaques. Concerns are also raised about the validity of captive-breeding claims and compliance with CITES regulations, such as the mislabelling of source codes on CITES export permits.**
- **The trade in long-tailed macaques from Laos. Findings included the farming of primates on an industrial-scale. Macaques were kept in cramped and unnatural conditions, with many living on wire floors. Evidence obtained again raises serious concerns about compliance with CITES regulations and breaches in the animal welfare guidelines of the International Primatological Society.**

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