



Counting the cost

Welfare implications of the acquisition and transport of non-human primates for use in research and testing

Mark J Prescott



RSPCA policy and strategy

The prime objectives of the RSPCA are to promote kindness and prevent or suppress cruelty to animals. With regard to laboratory animals, the RSPCA is opposed to all experiments or procedures that cause pain, suffering or distress. It adopts a constructive, practical approach, supporting and promoting development and adoption of techniques that will result in the replacement, reduction or refinement of animal experiments. The Society believes that as long as animals continue to be used, every possible effort should be made to prevent suffering at every stage of the animals' lives, not just during experiments but also throughout their acquisition, transport, housing, husbandry and care.

This policy and strategy applies to all laboratory animals, but the Society affords special concern to non-human primates (hereafter referred to as primates) because of their high level of development and their behavioural and social complexity. These factors in themselves make the use of primates in research and testing ethically questionable. In addition, there can be serious distress involved in the acquisition and transport of primates, and the conditions under which they are kept are seldom adequate to meet their needs.

As a charity, the RSPCA operates using funds that have been dedicated to the public good. It therefore accepts that it has no powers to follow policies that would have a serious detrimental effect on mankind and recognizes that it cannot seek a total ban on the use of primates when the current weight of scientific opinion is that their use is necessary for the purpose of alleviating human suffering. However, the RSPCA is committed to ending the suffering of laboratory primates and believes that the necessity and justification for all primate use should be critically reviewed at a national and international level. While primate use continues, the Society calls for major improvements in the existing controls on primate acquisition and transport and for breeding centre and laboratory conditions consistent with the behavioural, social and physical needs of these complex animals.



Abstract

The complex behavioural and social needs of non-human primates (hereafter referred to as primates), and the difficulties involved in fulfilling these needs in the laboratory, make their use in research and testing a matter of particular concern to the RSPCA. The importance of providing a suitable laboratory environment appropriate for primates' psychological well-being is now widely recognized, and this has undoubtedly led to improvements in their welfare. However, the consequences of primate use in research and testing are more far-reaching than can be addressed solely by improvements in their housing and husbandry. The RSPCA believes it important that any assessment of the ethical and welfare implications of primate use should encompass the entire life history of the animals concerned, including their acquisition and transport.

This report sets out the impact on welfare associated with each stage of the acquisition and transport process. It includes an in-depth analysis of the current UK trade in primates, with previously unpublished information on the numbers, species, sources and countries of origin of those imported to the UK between 1994 and 2000. Major welfare issues encompass conditions of housing, husbandry and care at overseas captive breeding centres, standards of transportation and transit times, the way in which trade in primates is regulated and monitored, and controls on the use of imported primates under the Animals (Scientific Procedures) Act 1986 (ASPA).

The RSPCA's specific concerns relating to the welfare of imported primates (from acquisition, through transport, to end use) are highlighted throughout the report as a series of 20 statements, together with the Society's recommendations for action on each point. The RSPCA believes it essential that these are addressed as a matter of urgency.

The recommendations are primarily directed at the two separate UK government departments that have individual responsibility for regulating both the importation and the use of primates for research and testing, the Department for Environment, Food and Rural Affairs (DEFRA) and the Home Office (HO) respectively. However, in order to fulfil their legal obligation under the ASPA to keep primate suffering to an absolute minimum, all those involved with primate use have a responsibility to ensure that they are fully aware of, and give thorough consideration to, all the costs to the primates involved in their work, including those due to acquisition and transport. This report is therefore essential reading not just for DEFRA and the HO, but also for appropriate licensees under the ASPA, ethical review processes, regulatory and funding bodies, and industry. These groups should all take immediate action to resolve the concerns highlighted in this report.

About the author

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Acknowledgement

Sincere thanks to Dr Maggy Jennings for the very helpful discussion and comments on the content and organization of this report.

Glossary

AHA	Animal Health Act 1981	IATA	International Air Transport Association
APC	Animal Procedures Committee	ICLAS	International Council for Laboratory Animal Science
ASPA	Animals (Scientific Procedures) Act 1986	IPS	International Primatological Society
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora	IUCN	World Conservation Union
DEFRA	Department for Environment, Food and Rural Affairs	JNCC	Joint Nature Conservation Committee
DETR	Department of the Environment, Transport and the Regions	LABA	Laboratory Animal Breeders Association
EUPREN	European Primate Research Network	LASA	Laboratory Animal Science Association
FELASA	Federation of European Laboratory Animal Science Associations	MAFF	Ministry of Agriculture, Fisheries and Food
HO	Home Office	PVEN	Primate Vaccine Evaluation Network
		WATO	Welfare of Animal during Transport Order 1997

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1 Introduction

Non-human primates (hereafter referred to as primates) are long-lived, very intelligent animals with perhaps the greatest learning capacity of all non-human mammals. They have highly developed brains, sophisticated cognitive capacities and complex patterns of behaviour. Furthermore, they are likely to have an awareness of pain, suffering and distress similar in nature to that of humans. These factors make their use in research and testing a matter of serious ethical concern. Concern over the ethics of primate use is exacerbated by the fact that the acquisition, transport, housing and care of primates also raise ethical and welfare problems.

Although primates have been used for experimental purposes for many years, they are unusual among laboratory mammals in many ways. For example, many laboratory primates are captured from the wild or purpose-bred in overseas breeding colonies that are founded with, and later replenished with, wild-caught animals. In fact, primates are the only laboratory mammals used in the UK of which a significant proportion are imported from overseas. Over 36 per cent of scientific procedures performed on primates in the UK in 2000 used animals obtained from overseas sources (Home Office, 2001).

All primates are listed in either Appendix I or Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This means that they are either in danger of extinction or are rare enough to reach that category in the near future unless action is taken to protect current populations. Yet by far the biggest threat to some wild populations of primates, after habitat destruction, is their trade for research. Between 1959 and 1980, the rhesus macaque (*Macaca mulatta*) population in India fell by 90 per cent due to live exports to research laboratories in the west. The World Conservation Union (IUCN) has listed the Japanese macaque (*Macaca fuscata*) as endangered yet an estimated 1,000 to 2,000 a year are captured and sold to Japanese laboratories for use in research (Cyranoski, 2000).

Primates are largely tropical animals and their journey from the wild or from overseas breeding centres to laboratories in the UK, Europe, and elsewhere in the world often entails transport over long distances. Primates do not have a long history of domestication like the laboratory dog or rat and even captive-bred primates remain essentially wild and highly reactive to unfamiliar stimuli. The very nature of these animals means that their capture, caging, handling and transportation is likely to cause high levels of suffering. Confinement of primates after arrival at the laboratory or breeding and supplying establishment also creates a number of specific problems. For example, their relatedness to humans means that both primates and humans are susceptible to a number of potentially life-threatening anthroponoses/zoonoses and parasites.

In the wild, primates range over large areas foraging for, often varied, food items. Most species are arboreal and do not habitually travel on the ground. New World monkeys lack ischial callosities for sitting and must perch using their feet rather than sit. Most primates show vertical flight responses and prefer to be above the level of a potential threat (human eye level). To satisfy all these factors in captivity necessitates large, tall, well-branched cages that are generally not compatible with laboratory practice. In addition, the intelligence and complex behaviour of primates requires a rich and stimulating captive environment, the provision of which is rarely financially feasible. Primates are a heterogeneous group of species, with varying patterns of social organization and behaviour and a wide range of psychological attributes and needs. Historically, failure to appreciate this variation has meant that primates are seldom kept in the laboratory or breeding and supplying establishment in a manner appropriate to their species. The importance of appropriate housing conditions for primates is reinforced by their longevity. Animals kept for breeding, or those on long-term studies, may be confined for 20 years or more.

Compared with other laboratory mammals, primates have slow generation times, producing few offspring per litter. Also, young primates have an extended period of infancy and juvenescence that extends well beyond nutritional weaning. It is usually assumed that this delayed biological and social maturity is due to the demands of learning about their physical and social environment, and about parenting, for survival and reproduction. Infants weaned early for breeding or research purposes, and consequently deprived of the opportunity to learn and meet these demands, develop behavioural abnormalities, fail to integrate well with their conspecifics (individuals of the same species) and may be unable to raise their own young successfully.

The defining characteristic of primates is their sociality. All species live in groups of some kind and within these groups individuals form discriminative bonds of differing strengths in an intricate, complex network of social relationships. They are able to recognize each member of the group, how other group members relate to them and, more impressively, how they relate to one another. This intense sociality means they suffer greatly when separated from their conspecifics for transport, quarantine and scientific procedures and experiments.

Despite all these problems, large numbers of primates are imported into the UK for research and testing purposes each year. The RSPCA is opposed to this, as it is to the import and export of all laboratory animals, since there is potential for serious welfare problems in their capture, housing, handling, husbandry and care, transport and acclimatization to new accommodation.

The Society addressed the issue of imported primates for research and testing in a report published in 1994 when the UK was the largest importer of primates in the European Union (EU). The RSPCA report by Drs Bidda Jones and Maggy Jennings *The Supply of Non-human Primates for Use in Research and Testing: welfare implications and opportunities for change* – made a series of recommendations for procedural changes to promote improvements in the welfare of captive-bred primates in overseas breeding centres and during transport to the UK. Many of these were subsequently implemented by the home secretary, after being advanced by a working group of the Animal Procedures Committee (APC), established in 1992 to consider various aspects of the laboratory use of primates. They were also indirectly incorporated in new regulations for the implementation of CITES.

While the RSPCA welcomes any improvements in primate welfare, it remains deeply concerned about the use of primates as laboratory animals. The Society's concern is echoed by the general public (Aldhous et al., 1999; MORI, 1999). The UK continues to be the major user of primates in research and testing in the EU (Ruhdel and Sauer, 1998). In 2000, 2,951 primates were used in 3,960 scientific procedures carried out in UK laboratories (Home Office, 2001).

The Society has specific concerns about the degree of progress in three general areas:

- the acquisition and transport of both wild-caught and captive-bred primates from countries outside the UK
- the conditions of housing, husbandry and care of captive primates
- the necessity of and justification for the use of primates under the Animals (Scientific Procedures) Act 1986 (ASPA).

This report re-addresses the first of these issues. It provides a detailed examination of UK trade in primates for research and testing, covering all aspects of primate acquisition. It is both an update and an extension of the previous RSPCA report, and it provides further recommendations for change. **Section 2** is a review of action on the recommendations contained in the 1994 report. Background information on the UK trade in primates from 1994 to 2000 is given in **Section 3**, including details of the numbers, species, sources and countries of origin of primates imported over this seven-year period. **Section 4** provides factual information on the way in which trade in primates is currently controlled and monitored, and examines the conditions under which primates are captured, confined and transported. Controls on the use of primates under the ASPA are also considered, particularly in relation to imported animals. Throughout this section, the animal welfare implications are emphasized and

the RSPCA's concerns identified together with the Society's recommendations for improvements and further progress.

The RSPCA is aware that trade in primates is a complex issue. In the UK, prior to the June 2001 general election, primate trade was regulated by three government departments: the Home Office (HO), the Ministry of Agriculture, Fisheries and Food (MAFF), and the Department of the Environment, Transport and the Regions (DETR). It is now regulated by the HO and the new Department for Environment, Food and Rural Affairs (DEFRA). The Society is submitting this report to these two departments for a response to its concerns and recommendations. However, the need for change applies equally, if not more, to countries outside the UK. The scale of use of primates in EU member states is a serious challenge to the effectiveness of the European Directive governing the protection of animals used for experimental and other scientific purposes (Directive 86/609/EEC). The Society continues to campaign for improvements in primate welfare across Europe as well as in the UK and intends to present this report to the appropriate European bodies.



MIKE LANE/RSPCA PHOTOLIBRARY

2 Progress since the 1994 report

The 1994 RSPCA report on primate supply for research and testing was a landmark document which received wide coverage in the media. As well as providing information on primate trade not previously collated, the report made 14 recommendations. These were intended as a basis for action for the HO, the DETR and MAFF, in so far as each related to the policy and practice of these government departments with regard to the supply of primates for use in research and testing. The recommendations focused on four main points.

2.1 Recommendations of the 1994 report

- There should be a formal ban on the importation and use of wild-caught, endangered and hominid primates (apes) for use in scientific procedures under the ASPA, and on the use of these animals to provide tissues and other materials for research.
- There should be a method for ensuring that the whole life experience of primates destined for laboratory use can be incorporated into the cost-benefit assessment of project licence applications under the ASPA. Among other things, this requires that designated supplying establishments must be able to provide reliable information on the housing and husbandry conditions in breeding centres from which they obtain their animals.
- Record keeping must ensure reliable information on the numbers, types and use of research primates entering and leaving the UK. Captive-bred animals must be supplied along with full documentation of their genealogy and life history, and there should be improvements in the collection of data by the relevant government departments – the DETR, MAFF, and the HO.
- There should be greater liaison between these government departments to ensure that importers possess adequate accommodation facilities before a CITES import permit is granted. In addition, all three departments need to cooperate more closely to ensure that accurate import records are maintained and published annually.

2.2 Controls under the ASPA

The HO is responsible for licensing scientific procedures using primates under the ASPA. It was quick to respond to these and other recommendations put forward by the primates working group of the APC, announcing the following changes.

- A ban on the importation of wild-caught primates for use under the ASPA, unless the project licence applicant can establish exceptional and specific justification for their use. All such applications are to be referred to the APC for advice before approval can be granted.

This was the main concern highlighted in the 1994 report. Since the UK ban was implemented, special exception has been made for the use of wild-caught olive baboons (*Papio hamadryas anubis*) in xenotransplantation research. This research has now transferred to the USA. Wild-caught primates continue to be used in Europe and elsewhere in the world.

- A ban on the use of great apes, that is, the common chimpanzee (*Pan troglodytes*), the bonobo (*Pan paniscus*), the gorilla (*Gorilla gorilla*) and the orang-utan (*Pongo pygmaeus*), in scientific procedures.

This was announced in 1997, following the APC's interim review of the ASPA. No great apes had been used in the UK since well before the introduction of the ASPA in 1986. Outside the UK, it is still possible to capture great apes from the wild and confine them for use in the laboratory, although they are all listed in CITES Appendix I. However, the Biomedical Primate Research Centre (BPRC) in the Netherlands remains the only laboratory in Europe to house great apes (common chimpanzees) for experimental use, and recently the Dutch minister of education, culture and science has announced that this research should be ended.

- Lifetime records of standards of breeding, housing and husbandry conditions must be supplied for all primates imported into the UK for use in research and testing.
- Approval for the acquisition of primates from overseas breeding or supplying centres will only be given if conditions at the breeding or supplying centre are acceptable to and approved by the HO. If the source of the animals is not known at the time of application, the granting of project licences will be conditional on HO approval of the source.
- The 'cost' associated with the acquisition and transport of primates (in terms of adverse effects on the animals) will be included in the cost-benefit assessment of a proposed programme of research under the ASPA.
- More detailed, collated data on primate use will be published either in the HO's annual statistics of scientific procedures on living animals or in the annual report of the APC.

In addition to these welcome changes in policy and practice, the HO inspectorate has been responsible for a number of significant improvements in the provisions for research primates, including the promotion of social housing and environmental enrichment.

In 1995 the HO *Code of Practice for the Housing and Care of Animals in Designated Breeding and Supplying Establishments* was published. Until this time, there were no statutory conditions for the housing and care of primates in breeding centres destined for use in research and testing in the UK. The RSPCA was represented on the group that formulated this document.

2.3 Controls under CITES

At the time of publication of the previous RSPCA report, the CITES was implemented within the EU by Council Regulation 3626/82 and Commission Regulation 3418/83. In the UK, the DETR was responsible for issuing permits to importers under these regulations.

New regulations implementing CITES within the EU were introduced in 1997 (Council Regulation 338/97 and Commission Regulation 939/97). These more adequately reflect the current structure of trade in, and conservation status of, endangered species. Also, the abolition of internal border controls with the formation of the single market meant that stricter trade control measures were required at the EU's external borders. A number of the changes made in the new regulations related to recommendations contained in the 1994 RSPCA report.

- There is an added requirement in the new regulations concerning shipments of live animals. The part of the import permit to be completed by customs must now contain information on the number of dead animals in the shipment at the time of arrival. This is important in view of efforts to improve transport conditions.
- The old regulations contained no provisions on monitoring of transport, compliance, investigation of infringements, sanctions, seizure, confiscation and related coordination. The new regulations establish an enforcement group and oblige member states to transport animals in accordance with EU legislation, to have adequate legislation on sanctions, to designate customs offices for carrying out checks and formalities and to state which are specifically intended to deal with live animals. Designated customs offices must have sufficient and adequately trained staff and must be able to provide accommodation for live animals in accordance with EU legislation.
- In its previous report, the RSPCA called for improved housing conditions to reduce suffering of primates in captivity. Under the new regulations, applications for licences made to the UK CITES management authority (the global wildlife division of DEFRA, formerly of the DETR) are referred to a CITES scientific authority for advice on the conservation status of the species concerned. The scientific authority for CITES in the UK, the Joint Nature Conservation Committee (JNCC), is required to determine, among other things, whether the intended recipient of an imported live primate of an

EC Annex A (CITES Appendix I) species is adequately equipped to conserve and care for it. In the case of Annex B (CITES Appendix II) primates, importers are obliged to ensure that the recipient of the animal (the first keeper following any period of quarantine or other confinement for sanitary checks and controls) is aware of the accommodation, equipment and practices required to care for it.

- The new regulations expand the categories of purpose of import and source of import given on CITES import permits, in order to improve information gathering. For example, permit applicants are required to list whether primates are wild-caught, captive-bred or first-generation (produced in a controlled environment, at least one parent having been conceived in or taken from the wild). The DETR duly revised their guidance notes (*General Guidance Note for Importers and Exporters GN1* and *Additional Notes for Primate Imports GN9*), with the intention of improving the collection of primate trade data and the monitoring of primate trade.

Despite these revisions, it remains the case that decisions regarding classification of purpose and source are the responsibility of the permit applicant and guidance for classification of purpose is unclear. Primates destined for use in research and testing may still be classified under a number of purpose categories (for example, bio-medical research, scientific, breeding, commercial) and import permits are sometimes issued without source and purpose being identified at all. Consequently, it remains impossible to accurately monitor the trade in primates for research and testing from CITES permits.

2.4 Controls under the AHA

Prior to the formation of DEFRA, a mechanism for monitoring all primates entering the UK was already in place, in the form of the import licences issued by MAFF under the terms of the Animal Health Act 1981 (AHA). The previous RSPCA report recommended that MAFF set up a centralized recording system and make the data publicly available. Unfortunately, this recommendation was not implemented, a decision which is at odds with the importance given to primates under the ASPA by the HO. Different sections within MAFF had responsibility for different stages in the process of primate acquisition for the UK with little apparent communication or co-ordination between them. Furthermore, there remains no maximum journey time or other special provisions to safeguard the welfare of transported primates, some of which currently spend an average of 63 hours in transit.

It is clear that, despite improvements in the controls on primate supply since the 1994 report, welfare concerns remain. The following section (**Section 3**) analyses UK primate trade data for 1994 to 2000 to help identify the current state of UK primate trade and any additional concerns that have arisen since the 1994 report. **Section 4** expands upon the Society's welfare concerns about the acquisition and transport of primates and suggests possible solutions to these in the form of recommendations.

3 Importation of primates from 1994 to 2000

Primates are imported into the UK from a number of different countries, primarily to meet the demand for these species in biomedical research and testing. Monitoring of this trade is an essential tool for achieving the aim of CITES, which is to prevent the extinction of animals and plants whose survival is under threat from unregulated international trade. Animal (and plant) trade records are required to be kept by the global wildlife division of DEFRA (formerly of DETR) and to be reported to the CITES secretariat on an annual basis. This section sets out the extent of the live primate trade from 1994 to 2000 and compares it with the period covered by the previous RSPCA report (1989 to 1993). It should be noted that in addition to these figures, large numbers of dead primates or parts of primates are imported to and exported from the UK each year.

The import and export figures analyzed below are based on DETR records of EC CITES permits issued between 1994 and 2000. The import and export of primates between the UK and the other 14 EU member states does not require a CITES permit. Consequently, it is not possible to assess accurately the extent of indirect imports to and exports from the UK. The records analysed below cover direct imports and exports of all primates to and from the UK only. Figures on primate use in scientific procedures given in Section 3.5 are based on statistics published annually by the HO.

3.1 UK trade in primates

According to the most recently published records, the UK is the largest importer of primates in the EU (European Commission, 1999). This was also the case when the previous RSPCA report was published in 1994, and is presumably because the European contract research industry is based in the UK. In the five years between 1989 and 1993, 12,149 live primates were imported into the UK. In the seven years between 1994 and 2000, this figure was 13,719. Over the latter period, the annual level of UK imports fluctuated (Figure 3.1), but the total remained very high compared

to most other EU countries, with the exception of France (European Commission, 1999). UK imports reached a peak in 1996 when, according to EC CITES records, the UK accounted for 50.5 per cent of all EU imports. Primate imports to the UK declined in 1997, probably due to new controls on primate use in research and testing introduced by the HO in 1996 (see Section 2.2). Imports increased to previous levels in 1998 and have decreased since then.

Primates are also exported from the UK, but the total number exported is considerably lower than the total number imported (see Figure 3.1). This suggests that most imported primates remain within the UK for their lifetime. In fact, most are used terminally in research and testing (see Section 3.5). A more detailed examination of the movements of primates into and out of the country is given in Table 3.1. The export of primates from the UK to another EU country does not require a CITES export permit. Consequently, it is not possible to assess accurately the extent to which the UK is used as a stopover destination for primates en route to another country.

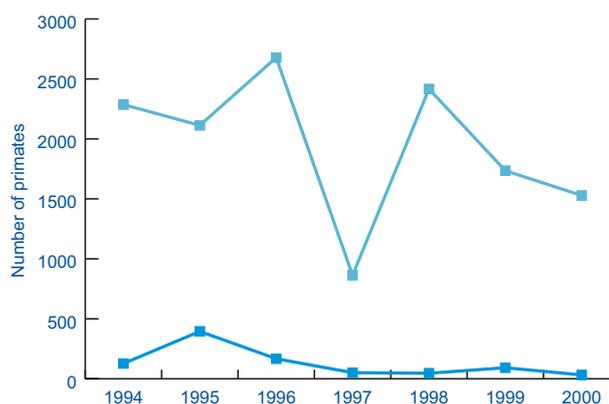


Figure 3.1 Comparison of UK imports and exports of primates from 1994 to 2000 according to UK CITES permit records.

Table 3.1 Movements of primates into and out of the UK from 1994 to 2000 according to UK CITES permit records. (Includes imports to and exports from Jersey, listed in CITES records as GB to/from GB, or GB to/from J1).

Type of permit*	Year of import							Total
	1994	1995	1996	1997	1998	1999	2000	
Import	2,286	2,113	2,678	863	2,416	1,735	1,528	13,719
Export	127	395	167	51	46	92	32	910
Re-export	2	4	5	7	66	18	0	102
EC CITES certificate	7	0	0	0	6	0	0	13

* There are three types of permit for exporting CITES-listed animals. Export permits cover animals bred in the UK and exported outside the EU; re-export permits cover the export of animals previously imported into the UK from a country of origin outside the EU; and EC CITES certificates cover animals exported from the UK to other EU member states (internal trade).

3.2 Purposes of primate importation

Applicants for CITES import permits must specify the purpose for which they intend to import animals into the EU. At the time of the previous RSPCA report, purposes of import were classified into four main categories: scientific, commercial, breeding, and other (including imports for personal purposes such as for pets). Purposes are now classified into 12 categories (Table 3.2). This makes direct comparison with the period covered in the previous RSPCA report difficult.

Table 3.2 Classification of purpose of import under CITES.

T	Commercial
P	Personal
M	Bio-medical research
Z	Zoos
Q	Circuses and travelling exhibitions
S	Scientific
N	Reintroduction or introduction into the wild
H	Hunting trophies
B	Breeding in captivity or artificial propagation
G	Botanical gardens
L	Enforcement
E	Educational

Figure 3.2 illustrates the categories of purpose for which primates were imported into the UK between 1994 and 2000. The majority of primates were imported for scientific purposes (55.0 per cent), or for bio-medical research (35.6 per cent), with commercial trade, breeding, zoos, circuses and travelling exhibitions, Personal purposes and non-listings (unknown) making up the remainder (only 9.4 per cent). Those instances in which purpose is classified as unknown are generally ones in which primates have been confiscated or seized by competent authorities.

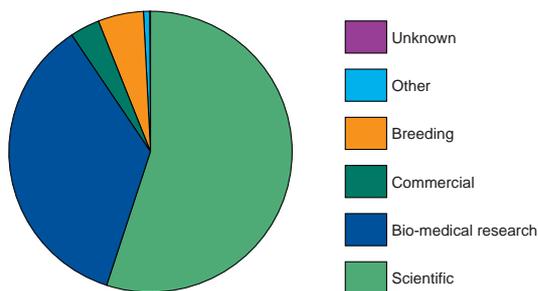


Figure 3.2 Purpose of primate imports into the UK from 1994 to 2000 according to UK CITES permit records.

Since 1994, there has been a marked change in the proportion of permits issued for each purpose category (Figure 3.3). For the period 1994 to 1996, imports classified as being for scientific purposes made up 94.8 per cent of the total. For the period 1997 to 2000, this category decreased to 11.3 per cent.

There has been a concomitant increase in the number of permits issued for bio-medical research purposes from none at all between 1994 and 1996, to 74.6 per cent between 1997 and 2000. It is unlikely that this shift represents any real change in the intended use of the primates concerned. It is more likely to reflect the expansion of the categories of purpose of import which came into effect with the new CITES regulations in 1997. In later years there is a tendency to label primates imported for research and testing as being for bio-medical research purposes rather than scientific purposes. In fact, in 2000, no primate imports were classified as being for scientific purposes.

Use of the classification 'commercial' has also increased in recent years. As with all CITES-listed animals, commercial trade in wild-caught, EC Annex A (CITES Appendix I) primates is not permitted, apart from in exceptional circumstances (see Section 4.3). Commercial trade may be permitted in Annex B (CITES Appendix II) and captive-bred Annex A animals following the issue of a certificate by a management authority of the member state in which the specimens are located. The management authority may specify conditions for subsequent use. Primates certified for import for commercial purposes may go on to be sold for scientific purposes, bio-medical research, breeding, educational purposes or to zoos.

It is of real concern that responsibility for the classification of purpose of import lies with the permit applicant. Furthermore, the existing guidelines for classifying purpose of import are inadequately detailed, in that different categories do not appear to be mutually exclusive. Confusion is particularly evident for primates imported for use in scientific procedures since presumably they can be classified in the scientific, bio-medical research, commercial or even breeding categories (if used to replenish breeding stock for eventual use in research) (see Section 4.3.5).

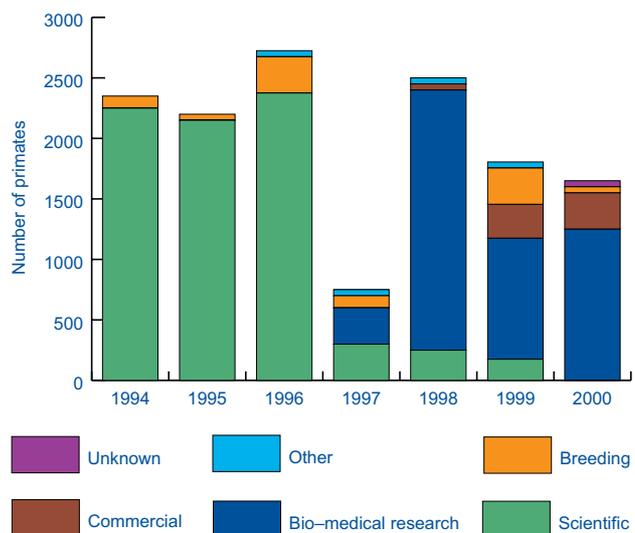


Figure 3.3 Change in the classification of purpose of import of primates into the UK from 1994 to 2000 according to UK CITES records.

3.3 Sources of imported primates

The categories of classification of source of animal imports for CITES permits were expanded in 1997 to include first-generation animals (Table 3.3). The numbers of wild-caught, captive-bred and first-generation primates imported into the UK during the period 1994 to 2000 are shown in Table 3.4. First-generation animals are animals produced in a controlled environment, at least one parent having been conceived in or taken from the wild. In this case some comparison with the previous RSPCA report is possible.

Table 3.3 Classification of source of animal imports under CITES.

W	Specimens taken from the wild
R	Specimens originating from a ranching operation
D	Annex A animals bred in captivity for commercial purposes
C	Annex A animals bred in captivity for non-commercial purposes and Annex B and C animals bred in captivity in accordance with Chapter IV, as well as parts and derivatives thereof
F	Animals born in captivity, but for which the criteria of Chapter IV are not met, as well as parts and derivatives thereof
I	Confiscated or seized specimens (only to be used in conjunction with another source code)
O	Pre-Convention specimens (only to be used in conjunction with another source code)
U	Source unknown (must be justified)

Between 1989 and 1993, 70 per cent of primates imported into the UK, including those for use in research and testing, were captured from the wild in countries with naturally occurring or introduced populations (Jones and Jennings, 1994). Only a relatively small number were bred in captivity. The proportion of captive-bred primate imports increased to 95 per cent in 1993 (Jones and Jennings, 1994), following the establishment in the late 1980s of breeding centres for the major imported species. The number of wild-caught primates imported into the UK has since been maintained at around 116 per year, or six per cent of the total imported between 1994 and 2000 (Table 3.4). These wild-caught primates are not generally used in research and testing, and comprise mainly common squirrel monkeys (*Saimiri sciureus*) and brown capuchins (*Cebus apella*) from Guyana, captured for breeding and commercial purposes. The capture of primates from the wild remains an issue of concern, given that it involves a high incidence of injury and death, potential damage to remaining populations, and stress to the animals that survive capture.

It should be noted that while an increase in the use of captive-bred, as opposed to wild-caught, primates in research and testing is a refinement, captive breeding in source countries has its own welfare problems, and may involve capturing wild animals to replenish or expand the breeding stock. Also, many more animals may be caught than are subsequently used due to the rejection of some as unsuitable for research purposes (see Section 4.1.3).

The majority of primates imported into the UK are now bred in captivity, and a large number (40.4 per cent between 1994 and 2000) are first-generation animals. Most of these are destined for use in research and testing. It is disappointing that the number of imports of first-generation animals is so high, and that captive breeding centres do not retain more of these in order to become self-sustaining and to discontinue capture from the wild (see Section 4.1.3). Greater detail on the sources of the major types of primate used in research and testing in the UK is given below in Sections 3.3.1 and 3.3.2.

Table 3.4 Source of primate imports into the UK in each year from 1994 to 2000 according to UK CITES permit records.

Source of import	Year of import								Total	% of total
	1994	1995	1996	1997	1998	1999	2000			
Wild-caught	56	41	205	125	12	300	84	823	6.0	
Captive-bred	2,226	2,172	1,714	174	331	425	294	7,336	53.5	
First-generation	0	0	759	564	2,071	1,008	1,140	5,542	40.4	
Unknown	1	0	0	0	0	2	8	11	<0.1	
Other	3	0	0	0	2	0	2	7	<0.1	

The three primate species most commonly used in UK laboratories are the common marmoset (*Callithrix jacchus*), the long-tailed macaque (*Macaca fascicularis*), also known as the crab-eating macaque or cynomolgus monkey, and the rhesus macaque.



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3.3.1 Marmosets

The marmosets used in research and testing in the UK generally come from well-established UK captive breeding colonies. In 1994, 78 per cent of the marmosets used in the UK were bred in-house (removing the need for transport to user establishments), and 19 per cent were bred elsewhere in the UK (EUPREN, 1997). However, marmosets are occasionally imported for use in scientific procedures when demand exceeds UK availability or to introduce new blood lines into breeding stock where necessary. UK captive breeding colonies are replenished with individuals from other captive breeding colonies and not with wild-caught animals, perhaps because of the health risk that animals from the wild represent to captive stock.

Although the transport stresses are likely to be less than for wild-caught animals, relatively minor husbandry changes and changes in laboratory procedures cause stress in marmosets (Boyd Group, in press; Heath & Libretto, 1993; Poole et al., 1999). New arrivals are likely to find it stressful to be removed from their social group, put into special boxes for transport, transported, and then quarantined for at least 30 days before adjusting to new social and environmental conditions in the recipient colony.

3.3.2 Macaques

Macaques are more difficult to breed in captivity in the UK than marmosets. They take longer to reach sexual maturity, have lower rates of reproduction and require greater space and resources. Consequently, more macaques than marmosets are imported to the UK from overseas breeding centres. In 1994, 89 per cent of long-tailed macaques and 50 per cent of rhesus macaques used in UK laboratories were obtained from captive breeding centres in source countries

(EUPREN, 1997). The remaining animals were captive-bred in the UK, mainly in universities and research institutes. Contract testing laboratories and pharmaceutical companies obtained almost all their macaques from overseas.

Although most of the macaques transported to the UK for research and testing are from captive breeding centres, most are first-generation individuals. Their parents will have been taken from the wild and replaced from wild populations when their breeding efficiency declines (Welshman, 1999). The stresses on the parent animals arising from capture, transport to the breeding centre, quarantine on arrival, and adjustment to new social and environmental conditions still remain. These welfare concerns are expanded upon in Sections 4.1 and 4.2. A few facilities in source countries are now retaining bred stock to enable them to breed and export second-generation animals (Welshman, 1999). This is a desirable development as it avoids early weaning and the intake of wild animals into the colony.

The European Primate Research Network (EUPREN) claims that welfare standards for laboratory primates could be improved if more of the 10,000 or so primates a year needed for research in Europe were bred within its borders (EUPREN, 1997). Considerable investment and time would be needed to make Europe self-sufficient in research primates at the level that EUPREN feels is necessary.

While there is undoubtedly a welfare benefit in avoiding use of wild-caught primates and eliminating long-distance transport, a more humane strategy would be to reduce the number of primates used in research in the EU as a whole. This would require greater consideration of the necessity and justification for their use, wider use of alternatives, better experimental design and more careful choice of species.



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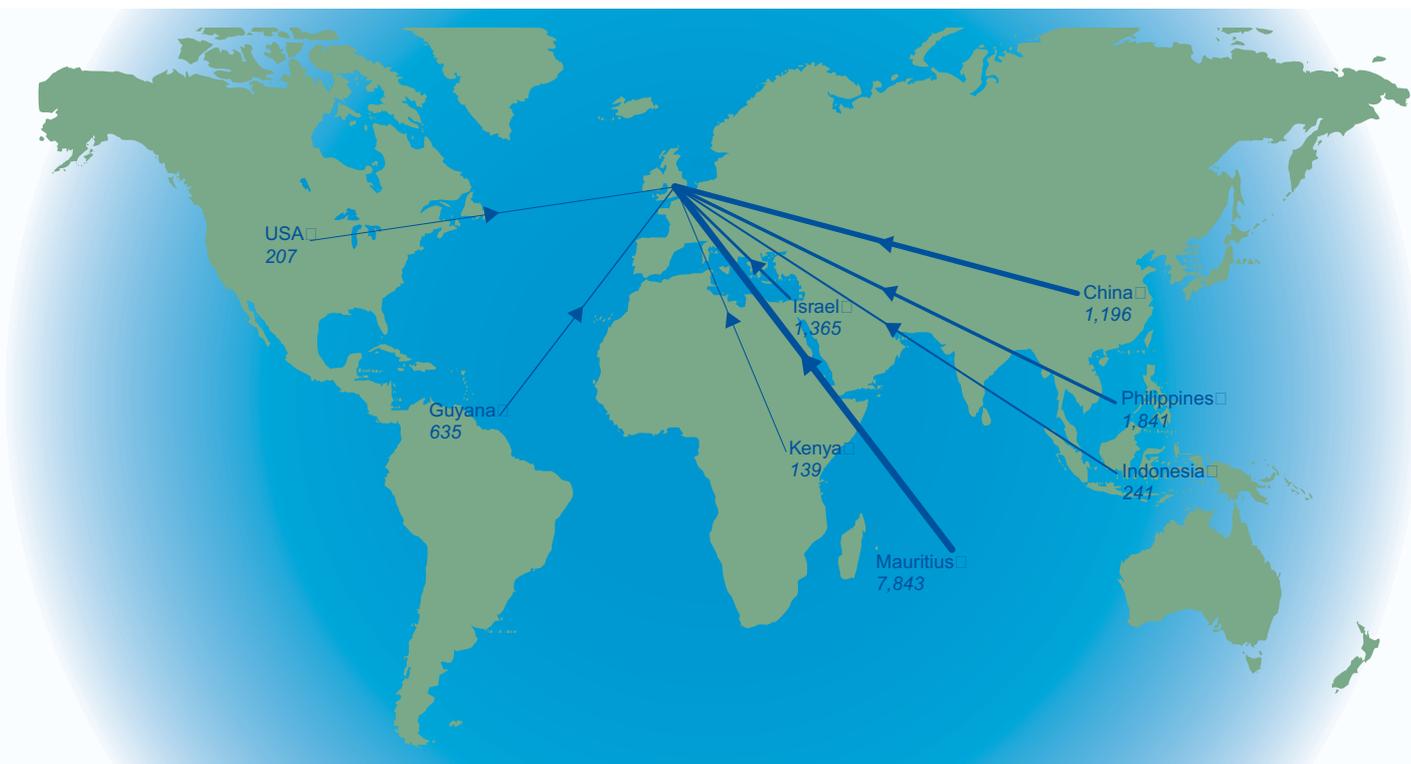


Figure 3.4 Principal exporters of primates into the UK over the period 1994 to 2000. Figures in italics represent the total number of primates exported to the UK over this seven year period. (The width of the arrows corresponds to the volume of exports).

3.3.3 Countries of origin

The principal exporters of primates into the UK over the period 1994 to 2000 are illustrated in **Figure 3.4**. Further

details of the countries concerned together with the number of animals imported from each are given in **Table 3.5**.

Table 3.5 Direct imports of primates into the UK (1994 to 2000) by country of origin. (Countries exporting more than a total of 40 animals are listed individually).

Country	Year of import							Total	% of total
	1994	1995	1996	1997	1998	1999	2000		
Mauritius	989	1,124	1,561	440	1,878	1,020	831	7,843	57.2
Philippines	742	514	370	36	144	35	0	1,841	13.4
Israel⁺	190	86	323	124	175	153	312	1,363	10.0
China	237	179	109	120	160	164	279	1,248	9.1
Guyana	0	0	161	111	0	280	84	636	4.6
Indonesia	0	178	50	0	12	0	0	240	1.8
USA⁺	42	80	15	0	7	0	5	149	1.1
Kenya	55	40	44	0	0	0	0	139	1.0
Other[*]	18	12	45	32	39	83	9	206	1.5
Unknown^{**}	13	0	0	0	1	0	8	22	0.3
Total	2,286	2,213	2,678	863	2,416	1,735	1,528	13,719	

⁺ Countries with no wild primate populations (captive-bred exports only). ^{*} Total imports from countries not listed separately ^{**} Country of origin not specified

Primates were obtained from a total of 32 countries. Over 94.3 per cent of all those imported into the UK originated from Mauritius (57.2 per cent), the Philippines (13.4 per cent), Israel (10.0 per cent), China (9.1 per cent) and Guyana (4.6 per cent). Indonesia, USA and Kenya also exported primates to the UK during this period, with a number of other countries making occasional exports. Some imports were listed as source unknown. In comparison, for the period 1989 to 1993, the Philippines was the main exporter to the UK (31.3 per cent), followed by Indonesia (24.4 per cent), Mauritius (19.2 per cent), China (8.0 per cent) and Guyana (6.0 per cent).

Imports from the Philippines and Indonesia are mostly long-tailed macaques. Although imports from these countries continue, the UK now obtains more of its long-tailed macaques from Israel, which is considerably closer to the UK, and Mauritius. Long-tailed macaques from Mauritius are favoured because they are naturally free from viruses such as herpes B, Simian Retrovirus (SRV), Simian Immunodeficiency Virus (SIV) and filoviruses (Welshman, 1999). First-generation animals bred in the facilities of other source countries come from wild parent stock where these viruses may be endemic. The breeding stock of long-tailed macaques for Israel is founded from imports of wild animals from Mauritius and this colony is therefore also free from herpes B virus.

All primate species are listed by CITES as either currently endangered (Appendix I) or potentially endangered (Appendix II). Despite this, there are few restrictions on the export of wild primates from countries with native

populations (**but see Section 4.3.3**). Sometimes countries impose their own restrictions on exports. A Philippines ban on the export of wild-caught primates became complete in August 1994 and Indonesia made the same decision in April of that year (Welshman, 1999). Guyana suspended the export of all its wildlife in 1993, but exports resumed in 1996.

Most of the primates used in research are obtained from a very small number of countries. Therefore a trade ban imposed by a source country can have a significant effect on supplies of animals worldwide. However, if an alternative source of animals is available the effect of a trade ban will usually be temporary, since the trade will simply shift from one country to another.

3.4 Species of imported primates

Over 84.7 per cent of all primates imported into the UK between 1994 and 2000 were long-tailed macaques. More than 96.1 per cent were from three species: the long-tailed macaque, the rhesus macaque, and the common squirrel monkey. The remainder were from 53 species. **Table 3.6** shows the numbers of each of the six main species that were imported each year since 1994. In addition, a summary of information on these species (purpose of imports, volume of trade, and origin of imports) is given on the following pages. According to the previous RSPCA report, of more than 12,000 primates imported between 1989 and 1993, 97 per cent were from five species: the long-tailed macaque (79 per cent), the common squirrel monkey (5.6 per cent), the rhesus macaque (5.5 per cent), the olive baboon (4.3 per cent), and the common marmoset (2.3 per cent).

Table 3.6 Principal primate species imported into the UK from 1994 to 2000.

Species	Year of import								Total	% of total
	1994	1995	1996	1997	1998	1999	2000			
Long-tailed macaque	1,961	2,012	2,304	600	2,196	1,248	1,300	11,621	84.7	
Rhesus macaque	238	149	108	120	160	124	127	1,026	7.5	
Squirrel monkey	10	0	109	98	48	201	68	534	3.9	
Olive baboon	55	40	44	0	0	0	0	139	1.0	
Brown capuchin	0	0	52	13	0	46	9	123	0.9	
Common marmoset	0	1	3	18	0	38	0	57	0.4	
Other*	22	11	58	14	12	78	24	219	1.6	

* 53 species

3.4.1 Long-tailed macaque (Box 3.1)

As was the case for the period 1989 to 1993, the long-tailed macaque is by far the most significant primate species in terms of the number of animals imported into the UK. Between 1994 and 2000, 11,621 were imported, mainly for use in research and testing. Paradoxically, this species of macaque frequently has to undergo transportation yet is possibly the one least able to respond satisfactorily to it (Clarke et al., 1988). Details of the countries of origin and the percentage of long-tailed macaque imports that were first-generation animals for each year from 1994 to 2000 are given in **Table 3.7**.

The majority of long-tailed macaques were imported from three countries: Mauritius, the Philippines and Israel. Since

the introduction in 1996 of the first-generation classification for source of import, all imports of long-tailed macaques from Israel and most of those from Mauritius have been classified as first-generation animals. This illustrates the fact that breeding centres in these countries are not self-sustaining and do not retain a significant proportion of their first-generation breeding stock in order to breed second-generation animals. These centres continue to draw very heavily on wild populations for replenishment of breeding stock. None of the long-tailed macaque imports from Indonesia and China, and very few of those from the Philippines, have been classified as first-generation animals. Imports from these countries were mostly animals from established breeding centres, bred from captive-bred parents.

Table 3.7 Countries of origin of long-tailed macaque imports into the UK from 1994 to 2000. (The percentages of first-generation animals for each year from 1996 are given below the total number of imports).

Country	Year of import							
	1994	1995	1996	1997	1998	1999	2000	Total
Mauritius	989	1,124	1,561	440	1,878	1,020	831	7,843
	-	-	27.0%	100%	100%	82.0%	99.5%	
Philippines	742	514	370	36	144	35	0	1,841
	-	-	9.7%	0%	0%	0%	-	
Israel	190	86	323	124	174	153	312	1,362
	-	-	100%	100%	100%	100%	100%	
Indonesia	0	178	50	0	0	0	0	228
	-	-	0%	-	-	-	-	
China	40	110	0	0	0	40	157	347
	-	-	-	-	-	0%	0%	
Total	1,961	2,012	2,304	600	2,196	1,248	1,300	11,621

Concern about the use of macaque species in research and testing is compounded by their conservation status. The long-tailed macaque is listed as lower risk/near threatened on the 2000 IUCN red list, which lists the threatened species of the world and recommends that governments protect them. Between 1959 and 1980, the rhesus macaque

population in India fell by 90 per cent due to live exports to research laboratories in the west. These have since stopped but the rhesus macaque is now also listed as lower risk/near threatened. The Japanese macaque is listed as endangered, yet up to 2,000 are thought to be captured and sold to Japanese laboratories for use in research (Cyranoski, 2000).

Box 3.1 Long-tailed macaque

Scientific name: *Macaca fascicularis* (*M. cynomolgus* and *M. irus* were formerly used)

Other common names: crab-eating macaque, cynomolgus monkey

Purpose of imports: 59.2% scientific, 39.6% bio-medical research, 0.6% breeding, 0.6% commercial

Volume of trade: 84.7% of total primate imports between 1994 and 2000

Origin of imports: captive-bred in Mauritius, the Philippines, Israel, Indonesia and China



3.4.2 Rhesus macaque (Box 3.2)

The rhesus macaque is now the second most commonly imported primate species used for research and testing in the UK. In the 1970s, India banned the export of wild-caught rhesus macaques, the major species used in research and testing in the UK at the time. In response to this, some captive rhesus colonies were set up in the UK, but the majority of researchers switched to using wild-caught long-tailed macaques. From the mid-1980s, breeding facilities for long-tailed macaques were set up in source countries in response to increasing conservation threats to

wild macaques and growing awareness of the severe welfare problems posed by the use of wild-caught animals. China is the only remaining significant source of rhesus macaques for the UK, supplying 96 per cent of those imported between 1994 and 2000. However, the costs to the monkeys of acquisition from China are of particular concern because of poor housing and husbandry conditions. No rhesus macaques have been imported for breeding purposes since 1994. Plans are underway, however, for a new captive breeding centre of rhesus macaques in the UK.

Box 3.2 Rhesus macaque

Scientific name: *Macaca mulatta*

Other common names: rhesus monkey

Purpose of imports: 54.3% scientific, 29.9% bio-medical research, 15.8% commercial

Volume of trade: 7.5% of total primate imports between 1994 and 2000

Origin of imports: captive-bred in China and the USA

3.4.3 Common squirrel monkey (Box 3.3)

This species accounts for 3.9 per cent of total primate imports between 1994 and 2000. All of those imported during this time were wild-caught from Guyana, sometimes arriving in relatively large single shipments (including one of 68 and one of 138 individuals). They were imported for breeding and commercial purposes. Guyana suspended the export of all its

wildlife in 1993, but exports of squirrel monkeys to the UK resumed in 1996. Exports of this species from Guyana and Suriname have been subject to CITES export quotas since 1997 (see Section 4.3.3). Squirrel monkeys are used by only one research institution in the UK, for pharmaceutical research and development. Although the monkeys involved are wild-caught, they were imported before the importation of wild-caught primates for use under the ASPA was banned.

Box 3.3 Common squirrel monkey

Scientific name: *Saimiri sciureus*

Other common names: none

Purpose of imports: 64.6% breeding, 27.0% commercial, 8.2% zoos, 0.2% personal

Volume of trade: 3.9% of total primate imports between 1994 and 2000

Origin of imports: wild-caught from Guyana

3.4.4 Olive baboon (Box 3.4)

A total of 139 olive baboons were imported to the UK between 1994 and 1996. All of these were wild-caught in Kenya. These particular baboons were used for a programme of xenotransplantation research, which was considered specific and exceptional justification for using wild-caught primates. There is currently no source of baboons purpose-bred for research in the UK, although several species have been bred successfully in safari park habitats and in captive primate centres in other parts of Europe. The

xenotransplantation research has now transferred to the USA and no baboons have been imported to the UK since 1996. Taxonomic classification of baboon species and sub-species is currently under debate (Jolly, 1997). Although *Papio hamadryas* is listed as lower risk/near threatened on the 2000 IUCN red list, *P. hamadryas anubis* is listed as lower risk/least concern. *Papio hamadryas spp.* from Tanzania and Ethiopia have been subject to CITES export quotas since 1997 and 2000 respectively (see Section 4.3.3).

Box 3.4 Olive baboon

Scientific name: *Papio hamadryas anubis*

Other common names: anubis baboon

Purpose of imports: 100% scientific

Volume of trade: 1% of total primate imports between 1994 and 2000

Origin of imports: wild-caught from Kenya

3.4.5 Brown capuchin (Box 3.5)

The brown capuchin is the fifth most frequently imported primate species. All the 123 individuals imported into the UK over the past seven years were wild-caught, mainly from Guyana. They were imported for breeding and commercial purposes. Capuchin monkeys are not currently used in

research in the UK. These monkeys show considerable cognitive skills that could be superior to those of other commonly used monkey species. Exports of *Cebus apella* from Guyana and Suriname have been subject to CITES export quotas since 1997 (see Section 4.3.3).

Box 3.5 Brown capuchin

Scientific name: *Cebus apella*

Other common names: tufted capuchin

Purpose of imports: 91.7% breeding, 7.4% commercial, 0.9% personal

Volume of trade: 0.9% of total primate imports between 1994 and 2000

Origin of imports: wild-caught from Guyana and Suriname

3.4.6 Common marmoset (Box 3.6)

The common marmoset is the sixth most frequently imported primate species, but the numbers involved are very small.

This species is bred in large numbers in the UK and the majority of imports have been for commercial or scientific purposes.

Box 3.6 Common marmoset

Scientific name: *Callithrix jacchus*

Other common names: white tufted-ear marmoset

Purpose of imports: 73.8% commercial, 21.4% scientific, 4.8% breeding

Volume of trade: 0.4% of total primate imports between 1994 and 2000

Origin of imports: captive-bred in South Africa, Switzerland and Jersey

3.5 Use of imported primates in scientific procedures

Information on the number of primates used in scientific procedures is published annually in the HO *Statistics of Scientific Procedures on Living Animals in Great Britain*. Primates are separated in the annual statistics into two main groups: prosimians and New World monkeys, and Old World monkeys. Further divisions into nine separate groups (generally taxonomic families) are also given for some analyses, but information is not provided for individual species (see Section 4.8.3).

3.5.1 Number of primates used

Details of the number of primates used, in addition to the number of procedures using primates, have been available since 1990. In that year, 3,630 primates were used, compared with 2,951 in 2000. The number of primates used per year has fluctuated, however, and this does not represent a steady decrease (Figure 3.5). From 1990 to 2000, a total of 37,317 primates were used in scientific procedures.

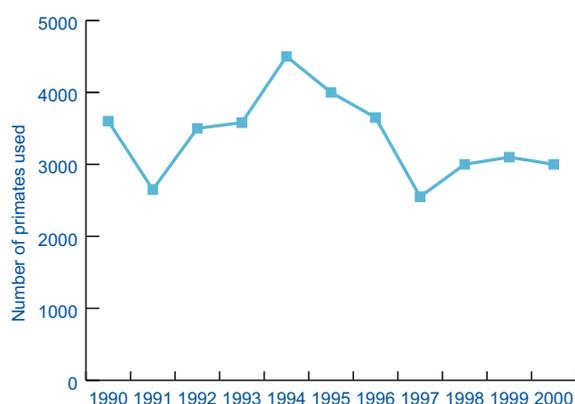


Figure 3.5 Total number of primates used in scientific procedures from 1990 to 2000.

The purposes of scientific procedures involving primates in the UK in 2000 are given in Table 3.8. Some 85 per cent of procedures on primates were part of applied studies consisting of research into, development of, and quality control of, products and devices for human medicine, dentistry and veterinary medicine. Of these, 81 per cent included toxicology evaluation and safety or efficacy testing, mainly of new pharmaceutical products. Almost all this testing is performed for legislative reasons, that is, to meet the requirements of UK, EU or other regulations intended to evaluate the safety of pharmaceutical products and to ensure that any risks to the consumer are minimized (Home Office, 2000a). The majority of the remainder of the procedures on primates were part of fundamental biological research, carried out with the primary intention of increasing knowledge of the structure, function and malfunction of the body (in both animals and humans).

A breakdown of primate use by family group for 1994 to 2000 is given in Table 3.9. Since 1996, the HO has required that the use of Old World as opposed to New World primates must be specifically justified (see Section 4.8.2). Old World monkeys from Africa and Asia (such as macaques and baboons – Cercopithecidae) make up between 54.7 and 72.3 per cent of all primates used. New World monkeys from the Neotropics (such as marmosets and tamarins – Callitichidae – and squirrel, owl and spider monkeys – Cebidae) account for between 27.7 and 45.3 per cent. No prosimians were used in this period. The percentage of total procedures involving each family group remained relatively constant over the seven-year period (Table 3.9).

Table 3.8 Purpose of scientific procedures involving primates in the UK for 2000.

	Fundamental biological research	Applied studies (human medicine, dentistry, veterinary medicine)		Safety (protection of man, animals or environment)	Other uses
		Non-toxicology	Toxicology		
New World monkeys	275	443	775	0	1
Old World monkeys	260	141	1,788	0	7
Total	535	584	2,563	0	8

Table 3.9 Numbers of primates used in scientific procedures for 1994 to 2000. (Figures in brackets show for each year the percentage of total procedures involving primates that were carried out in each family group).

Species	1994	1995	1996	1997	1998	1999	2000
Prosimians	0	0	0	0	0	0	0
New World monkeys							
Marmosets and tamarins	1,866 (49.1%)	1,544 (42.1%)	1,330 (38.5%)	1,004 (51.1%)	849 (31.3%)	1,073 (37.8%)	1,060 (39.8%)
Squirrel, owl and spider monkeys	9 (2.0%)	8 (0.3%)	18 (0.6%)	0 (0.4%)	8 (1.0%)	0 (0.6%)	0 (0.7%)
Other	0	0	0	0	0	0	0
Old World Monkeys							
Macaques	2,215 (48.0%)	2,403 (55.9%)	2,410 (59.9%)	1,658 (47.8%)	2,237 (67.5%)	2,118 (61.6%)	1,891 (59.5%)
Baboons	45 (0.9%)	80 (1.7%)	28 (1.0%)	17 (0.7%)	4 (0.2%)	0 (0%)	0 (0%)
Other	0	0	0	0	0	0	0
Total	4,135	4,035	3,786	2,679	3,098	3,191	2,951

3.5.1.1 New World monkeys

The majority of procedures on New World monkeys involve marmosets and tamarins. The most frequently used New World species by far is the common marmoset. Tamarin species used in research are generally the red-bellied tamarin (*Saguinus labiatus*) and cotton-top tamarin (a CITES Appendix I species). Other New World monkeys such as squirrel monkeys, and occasionally owl monkeys (*Aotus spp.*), are used but these generally account for less than 1.0 per cent of the total number of procedures involving primates. It is not possible to determine in detail from the HO annual statistics which particular species are used in the UK or what they are used for (see [Section 4.8.3](#)).

The cotton-top tamarin is used extensively in biomedical research in the study of colonic adenocarcinoma (cancer of the colon) and ulcerative colitis. Squirrel monkeys are used for pharmaceutical research and development. Owl monkeys are used in malarial drug and vaccine development and to study vision.

3.5.1.2 Old World monkeys

Old World monkeys are classified in the HO annual statistics into two main groups: macaques and baboons. Macaques

account for between 53.6 and 72.2 per cent of all primates used in the UK with baboons making up just under 1.7 per cent (mean of the past seven years). Other Old World species are occasionally used, although none have been used since 1994. These species are not identified separately in the annual statistics.

Compared with the previous RSPCA report, the percentage of macaques used relative to other species has increased. The statistics do not provide any further information regarding individual macaque species, but it is clear from the importation figures in [Section 3.4](#) that the majority of Old World primates used are long-tailed macaques.

3.5.2 Relationship between primate importation and use

The relationship between imports of both New and Old World monkeys and their use in scientific procedures is illustrated by the DETR CITES and HO figures in [Figure 3.6](#). It should be noted that a CITES permit is not required in order to move primates into the UK from other EU member states, so indirect imports are not shown.

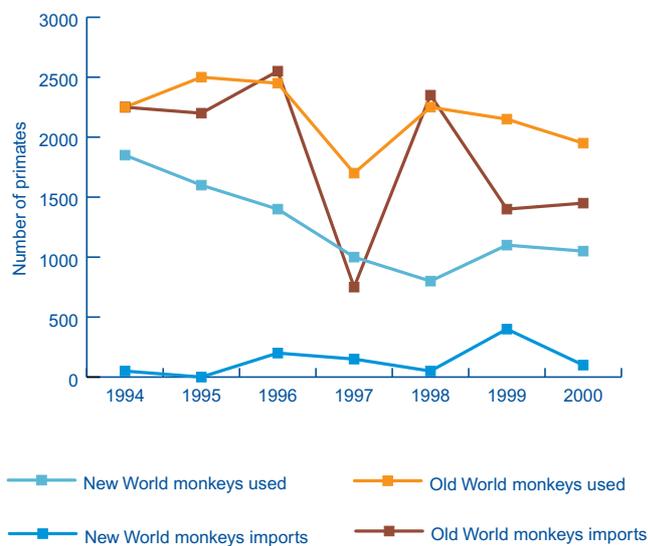


Figure 3.6 The relationship between the number of New and Old World monkeys imported into the UK and the number used in scientific procedures from 1994 to 2000.

Although primates may be imported in one year and used in another, it is obvious that the demand for New World monkeys could not be satisfied by the numbers of these animals imported. This is because most of the New World monkeys used in research are purpose-bred at breeding establishments designated under the ASPA within the UK. For example, a number of sizeable marmoset colonies have been established in the UK for at least 20 years and each breeding pair can rear an average of two litters per year. These breeding establishments are often connected to the scientific procedures establishments where the animals are subsequently used.

The situation is different for Old World monkeys, where the numbers used are more closely related to the numbers imported. Some of the Old World monkeys used in procedures, including both long-tailed and rhesus macaques, are purpose-bred in the UK, but most are imported. The following section (**Section 4**) gives details of the welfare implications of acquisition and transport of both imported and UK purpose-bred primates.



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4 Welfare implications of the acquisition and transport of primates

Primates entering the UK come from sources in many different countries, and are imported for a variety of purposes. Nevertheless, to enter the UK all must be licensed under two separate licensing systems. Until recently, import permits had to be obtained from the DETR under the CITES, and also from MAFF under the AHA. Both CITES permits and AHA licences are now obtained from the DEFRA, which brings together the wildlife and countryside directorate of the former DETR and all the functions of the former MAFF. Animals destined for breeding or use under the ASPA come under HO control (see Section 4.8). The RSPCA is concerned that the controls and monitoring under these systems are insufficient to safeguard the welfare of primates during their acquisition and transport to the UK.

The following sections expand upon the Society's welfare concerns. Section 4.1 discusses the different sources of primates imported for research and testing and Section 4.2 details the conditions of husbandry and care in their countries of origin. Sections 4.3, 4.4 and 4.5 examine the records obtained by DETR and MAFF licensing systems and discuss the accuracy of these systems for monitoring the UK primate trade. Conditions of transport and controls on transport are covered in Sections 4.6 and 4.7 respectively. The final section (4.8) considers the control of primate use under the ASPA with specific reference to imported animals. The specific concerns of the RSPCA (from acquisition, through transport, to end use) are identified throughout the text as a series of numbered statements, together with the Society's recommendations for action on each point. The main focus of these recommendations is summarized in the conclusion to this report (Section 5).

4.1 Sources of imported primates

The following information deals mainly with the acquisition of long-tailed and rhesus macaques, since these species comprise the greatest proportion of UK imports. Nonetheless, the principles described and the concerns raised here would apply to the capture or breeding of any of the commonly used primate species.

Primates used in research and testing may come from three main types of source: wild populations, island populations and captive breeding centres. The main characteristics of these sources are summarized in Box 4.1. Island-dwelling primates are not used in research and testing in the UK.

Box 4.1 Comparison of characteristics of wild-caught, island-living, and captive-bred primate populations

Wild-caught

- natural environmental conditions
- natural disease, parasites and predators
- natural diet
- minimal or no human contact
- minimal or no population control
- no restrictions on movement, environmental complexity or social contact

Island-living

- natural environmental conditions
- limited protection from disease, parasites and predators
- supplemented diet
- some human contact
- monitored population
- movement, environmental complexity and social contact restricted to island

Captive-bred

- controlled environmental conditions
- protection from disease, parasites and predators
- controlled diet
- regular human contact
- controlled population
- environmental complexity, movement and social contact all restricted

4.1.1 Wild populations

Wild-caught primates come from two types of populations: naturally occurring (indigenous), and introduced. Most of the countries exporting wild-caught long-tailed macaques to the UK have naturally occurring populations of this species. Exceptions are Mauritius, where the long-tailed macaque was introduced from South East Asia by humans over 300 years ago and is now regarded by many as an ecological and agricultural pest (Bertram & Ginsberg, 1994), and Israel, where a captive breeding centre was founded with animals from Mauritius. Primates in both indigenous and introduced wild populations are generally free-ranging, with no direct human intervention in their lives. They benefit from natural temperatures, humidity and diet, but are also subject to naturally occurring diseases, parasites and predators. When these wild primates are trapped, it may be the first contact they have with humans. Capture is extremely stressful for them and there is often a high mortality and injury rate associated with their trapping and transfer to the source country's holding site (see Section 4.2.1).

4.1.2 Island populations

In some locations, primates have been introduced onto small islands where they are allowed free access to the surrounding habitat. Examples include rhesus macaques on Cayo Santiago (Puerto Rico), long-tailed macaques on Deli Island (Indonesia), and grivet monkeys (*Cercopithecus aethiops sabaeus*) on Barbados, St Kitts and Nevis in the Caribbean. These populations are used both for breeding purposes and for long-term studies of primate ecology and behaviour. Island breeding originally involved trapping wild primates, then releasing healthy stock to breed on an island or similar large area of suitable habitat from which they could not escape.

The principal difference between an island population and a truly wild population is the level of human intervention in the lives of the animals. Island-dwelling primates are generally provisioned by humans and aspects of their health and behaviour are also manipulated. When chosen for export, individuals are captured, caged, health screened and quarantined (often singly-housed) at a holding facility before being transported. The founder members of an island population would have been taken from the wild, but their offspring are generally regarded as captive-bred. These populations are not subject to natural predators, and may be protected to some extent from parasites and disease by virtue of their isolation from mainland populations.

4.1.3 Captive breeding centres

Among the direct threats to free-ranging (wild) primates are habitat destruction, hunting and live capture for the pet trade. The use of such animals for research and testing poses an additional threat to the survival, and ultimately conservation status, of some species and local populations. All primates are already listed by CITES as either endangered (Appendix I) or potentially endangered (Appendix II). Furthermore, the genealogy, age, past clinical history and present health status of wild-caught specimens are unknown. They may harbour diseases and parasites that could present a health hazard to staff as well as stock. Additional variability arises from geographical and seasonal changes in the diet and environmental conditions of wild populations. Quarantine and acclimatization can only partially correct for these.

According to laboratory breeders, the ultimate solution to these problems is to breed the quality of animal desired under standardized husbandry practices. This results in 'safer', more 'homogeneous' animals. It is considered that the reduced variability of specimens should in turn lead to a reduction in the number of animals needed in individual research studies. Captive-bred primates are also likely to be less afraid of humans and less stressed by prolonged human proximity than are wild-caught individuals, and they may be more easily trained. Training primates to cooperate with procedures is considered particularly beneficial in terms of minimizing their stress, as well as facilitating animal management and conduct of research studies (Laule, 1999).

In recent years demand for well-characterized primates of specified health status has grown.

It would appear that, if primates are to continue to be used in research and testing, there are strong scientific and animal welfare reasons for choosing captive-bred animals. However, it should be noted that captive breeding centres are often not the welfare refinement they claim to be, for a number of reasons. Firstly, in most cases, captive breeding colonies are founded with primates taken from the wild. Secondly, wild animals are often brought in to reduce inbreeding once the breeding programme has been established. Thirdly, wild primates are sometimes caught, conditioned at the 'breeding' centre, and then sold on for research and testing (although not to the UK).

The major differences between captive-bred and island or free-ranging (wild) populations are the restrictions on movement, environmental complexity and social contact imposed by the captive state. Although most overseas breeding centres house their primates in relatively large enclosures compared to the size of caging provided for experimental primates, the captive environment is still restricted to a few square metres of limited complexity. Moreover, the standards of care and housing in these centres can vary greatly, with different centres operating different housing and husbandry protocols (see Section 4.2.2).

In 1981, the IUCN primate specialist group formulated a policy which recommended that endangered, vulnerable and rare species be used for biomedical research only when they are obtained from existing, self-sustaining captive breeding colonies. A self-sustaining or established breeding colony is defined as one in which captive-bred animals themselves have bred (that is, one that produces second-generation animals). Moreover, for HO approval, representatives of non-designated overseas breeding centres must sign a declaration confirming that it is the policy of the centre to produce increasing numbers of second-generation offspring in order to reduce dependence on wild animals for breeding.

Disappointingly, since the IUCN policy and HO declaration were formulated there has been only a small increase in the number of first-generation animals retained for breeding. This is largely a result of commercial pressures; the time interval between the establishment of breeding stock and the availability of suitable second-generation animals for export, certainly for larger species with long generation intervals, entails additional expense and breeders have been reluctant to comply. Instead large numbers of first-generation individuals are exported and colonies do not become self-sustaining. Welshman (1999) gives an example of breeders in South East Asia who only supply first-generation animals. They catch males and females to breed, remove the offspring and then start again, never maintaining a colony to breed second-generation animals. According to Welshman, this results in poor quality, genetically undefined animals with an unknown

parasite status, as well as requiring the continued capture of wild animals for breeding. As long as end-users are content to purchase first-generation (and wild-caught) animals, there is little incentive for change.

Concern 1

The capture and confinement of wild primates causes high levels of distress to these animals, which the RSPCA finds unacceptable. Currently, many of the 'captive-bred' animals supplied for research and testing are actually the first generation bred in captivity, and breeding centres continue to replenish and augment their stock with animals taken from the wild. Drawing from the wild poses an additional threat to the survival, and ultimately conservation status, of some species and local populations.

Recommendation 1

The HO should make it a requirement of primate users that primates can only be obtained from established breeding colonies that do not replenish with wild-caught animals and that retain a significant and increasing proportion of first-generation animals for breeding second-generation stock.

4.2 Primate welfare in countries of origin

Primates are tropical animals and many are exported from developing countries that have human rights problems and meagre economic resources. Many of these countries may be reluctant to address animal welfare issues. However, primates imported to the UK for use under the ASPA are under HO regulation and so receive a degree of control. Primate users and the HO are morally obliged to ensure the highest standards of welfare for these animals at all stages of their acquisition and transport.

Since 1995, project licence applicants proposing to use primates in experiments, and the HO inspectorate, which assesses such applications, have been required to take into account the 'costs' to primates arising from acquisition and transport (Home Office, 1995b, 2000c). However, it is not clear how these costs are weighted in the cost-benefit analysis carried out by the HO inspectorate. Also, project licence applicants and ethical review processes may be unaware of the complete (lifetime) experience of the animals concerned or the stresses that acquisition and transport impose upon them. This section (4.2) describes in detail the costs to primates that are a consequence of acquisition. Costs due to transport are described in **Section 4.6**.

4.2.1 Capture and confinement of wild primates

The capture of primates from the wild and their subsequent confinement carries a high price in terms of capture-related deaths. The trapping of free-ranging primates results in the highest incidence of mortality and serious injury of all stages involved in primate acquisition. The trapper is in business purely for economic reasons and often has little regard for the welfare of the animals collected, spending the absolute minimum on the care and maintenance of the catch (BUAV, 1992). Trapping methods, which include netting and bait-traps, are indiscriminate with no regard for the demographic status of the remaining wild population. In some instances, mothers may be killed to obtain young, although this is not always the case. Animals captured but subsequently deemed unsuitable for use may also be killed rather than be released. Where trapping takes place over a large area, monkeys may be left in traps for several days or even weeks before a sufficient number are caught for moving to a holding centre (Hobbs, 1989). Handling and housing conditions for trapped animals are often poor, and socially incompatible animals confined together may injure or kill one another.

With the exception of baboons for xenotransplantation research, and animals obtained prior to the introduction of the ASPA in 1986, the majority of current UK primate use now involves captive-bred animals (see **Table 3.2**). However, there is still a significant worldwide trade in wild-caught primates, even where the species concerned is available from a captive-bred source. The use of captive-bred animals in itself imposes some demand for wild-caught animals since primates are taken from the wild to set up colonies and to supplement the breeding stock of established centres.

Concern 2

Little reliable information is available to primate users, local ethical review processes and the HO from overseas suppliers on the methods used in capturing and handling free-ranging primates, or on the conservation status of the populations from which they are obtained. Without this information it is difficult for primate users to make informed choices about which establishment to obtain primates from, and for the HO to make informed decisions when considering approval of overseas sources. In addition, neither party can perform a proper assessment of the full costs of acquisition to the primates involved in a programme of work under the ASPA.

Recommendation 2

In considering approval of non-designated overseas breeding and supplying establishments, the HO should require information on the methods of capture and handling and the conservation status of source populations. This information should then be made available to primate users and to local ethical review processes.

4.2.2 Standards at captive breeding centres

Few countries with primate breeding centres have detailed legislation to control standards of housing, husbandry and care and even when legislation exists, it is often not enforced (Jones, 1996). Primates imported from different centres may have been reared in different housing conditions under different husbandry practices with significant implications for their well-being both during and after rearing. One example of this variation in husbandry practice is the age at which offspring intended for export are weaned.

4.2.2.1 Weaning age

Weaning occurs as infants mature and actually consists of two concurrent processes: nutritional weaning and behavioural weaning. Nutritional weaning is complete once the infant is no longer dependent upon the mother for total provision of food. Behavioural weaning extends beyond the conclusion of nutritional weaning and encompasses the period where the infant may nurse, not primarily to obtain food, but to obtain comfort and reassurance during times of stress.

Long-tailed macaques bred at one centre in the Philippines are weaned (forcibly removed from their mother) at only 90 days, whereas infants of the same species bred at a Mauritian centre are not weaned until they are six months old. The reasons given by different centres to justify the age at which primate offspring are weaned are often conflicting.

The age at which primates are taken from their mothers can have a profound deleterious effect on their subsequent behaviour (Mineka & Suomi, 1978), and early weaning has been found to affect all four approaches to assessing well-being in primates as defined by Novak and Suomi (1988). These include immunosuppressive effects that compromise physical health (Reite, 1987; Laudenslager, 1988), corticosteroid increases that indicate a physiological stress response (Champoux & Suomi, 1994), and increased stereotypies and abnormal behaviours that might compromise both the behavioural repertoire and behavioural competence of the animal (Bard & Nadler, 1983; Goosen, 1989; Kraemer, 1997). Differences in weaning practices can have serious repercussions for the long-term welfare of these animals and for the validity of scientific data obtained from them. Moreover, behavioural responses similar to those observed in primate infants after maternal separation have been observed in non-related primate infants, pre-adolescents and infants, juveniles, and adults after separation from their cage mates.

In the wild, long-tailed macaque mothers nutritionally wean their infants at around 14 months (Harvey et al., 1987). However, an infant remains with its mother until her next baby is born, and inter-birth intervals are between 12 and 24 months for both long-tailed and rhesus macaques (Ross, 1992). The young are classified as juveniles until the age of

42 months and they reach sexual maturity (adulthood) at around 52 months for females and 50 months for males. Juvenile males emigrate from their natal troop when they are about five years old, while females remain in their natal troop (van Noordwijk et al., 1993). The maximum recorded life span for long-tailed macaques is 37.1 years (Ross, 1991; Michael & Zumpe, 1993) and for rhesus macaques it is 29 years (Ross, 1991).

Macaque infants in captive colonies ought to remain with their mothers for at least a year but are commonly weaned at five or six months, especially in colonies where herpes B virus transmission is a problem. Long-tailed macaques in Mauritius are naturally free of herpes B virus but elsewhere as much as 85 per cent of the breeding stock can be affected. It has been reported that the percentage of herpes B virus-negative animals can be increased to 95-98 per cent by weaning infants at three months, so removing them from potentially infected adult stock (Welshman, 1999). It has also been shown that removal of infants can improve reproductive performance of the colony by ending lactational amenorrhoea and bringing the mothers into oestrus again, but such an intervention is very stressful for the infant and has an adverse effect on adult behaviour (Goo & Fulgate, 1984). Individuals weaned early into peer groups often develop behavioural abnormalities, fail to integrate well and may be unable to raise young successfully (Mason, 1963; Goy et al., 1974; Goldfoot, 1977; Kraemer, 1997). Because most laboratory research focuses on the use of primates as 'animal models' for humans, it is imperative that colony managers seek to produce the healthiest subjects possible. This must include maintaining behavioural as well as physical health (Wallis & Valentine, 2001), so colony managers should consider carefully the age at which they wean their animals.

A high incidence of rejection and mis-mothering is seen among macaque mothers that were weaned into peer groups aged six months or younger. Primate breeders will often resort to hand-rearing the rejected or mis-mothered offspring of these mothers in an attempt to retain as much of their stock as possible. Hand-rearing highly social primates when their own parents cannot or will not raise them creates as many problems as it solves and rarely succeeds in producing a psychologically normal animal. Interactions with parents and adults provide experiences that are indispensable in primate social development. Continuous housing of hand-reared infants together is also undesirable because it prolongs infantile behaviour (Mason, 1991) and may make them more susceptible to disease through alterations in the immune system (Gust et al., 1992). The ethical acceptability of using enculturated animals for experiments when they are unable to function effectively with their social group, or for breeding when they lack knowledge of parenting, must be questioned.

Common marmosets are communal rearers, with infant care being provided by the breeding male and older offspring in the family troop as well as by the mother. In captivity, and

probably in the wild, marmoset mothers nutritionally wean their infants after nine to 13 weeks (Ingram, 1977; Winter, 1978). There follows a long period of association and learning, during which the young marmosets remain with their family troop as juveniles (five to ten months), and sub-adults (ten to 15 months). They help their parents carry and care for subsequent offspring and only disperse when they become sexually mature at around 18 months old (Yamamoto, 1993). Some never disperse, probably due to lack of suitable habitat for establishing home ranges, and instead increase their inclusive fitness through kin selection or reciprocal altruism by remaining in the natal troop and helping their relatives to raise more offspring (Rylands, 1982; Abbot et al., 1993; Koenig, 1995). Common marmosets can live for up to 17 years in captivity.

As with macaques, captive callitrichid infants hand-reared or socialized in peer groups are considerably less successful as breeders and parents in captive colonies than those that are reared in extended families (Snowdon et al., 1985; Johnson et al., 1986). In order to successfully rear their own young, infants destined for breeding need to assist in the rearing of two pairs of siblings before they have the necessary experience to become parents and so should not be removed from their care-givers until they are 18 months old. Some marmoset infants in captivity, however, are removed from their family groups at around nine months.

4.2.2.2 Age at export

Further differences in husbandry practice between breeding centres concern the age at which primates are selected for export. Animals are generally selected on the basis of age and/or weight according to client requirements. There is a tendency to 'cage-condition' animals prior to export which may be done by housing them singly. Selected animals are caged for varying lengths of time, depending on the policy of the facility concerned or on user requirements. For macaques in Mauritius the time is between two and four weeks, while in the Philippines a 45-day quarantine period is required (Welshman, 1999). Wild-caught vervet monkeys from Barbados destined for use by a major pharmaceutical company in polio vaccine production in Belgium are conditioned in single-housing for three months before transport. The major supplier of rhesus macaques to the UK is situated in China, where animals destined for the UK are quarantined singly for 21-25 days in shipment cages measuring only 60 x 70 x 80 cm. This is a tiny 0.336 m³.

4.2.2.3 Quality of personnel

There are also differences in the quality of personnel in overseas breeding centres. The Primate Vaccine Evaluation Network (PVEN) argues, in *Recommendations, Guidelines and Information for Biomedical Research Involving Non-Human Primates with Emphasis on Health Problems of Developing Countries* (Poole & Thomas, 1995), that there is an urgent need to upgrade the basic training for technicians working in the animal facilities of source countries. In the

past, some of these overseas institutions have chosen to employ poorly-educated, unqualified workers or those performing inadequately in other departments of the same institutions. It is generally acknowledged in the scientific community that staff responsible for the care and management of primates require special knowledge and practical skills and the highest standard of training because of the ethical and welfare considerations involved. Furthermore, well-trained and motivated personnel can make an enormous difference in reducing the stress on primates used in research and testing and in improving their welfare, which ultimately leads to improved science (Poole, 1997). Well-trained care-giving staff at overseas breeding and supplying establishments could do much to help ease the primates' transition to research establishments.

4.2.2.4 Conditions of housing, husbandry and care

In 1988, in recognition of the need for internationally acceptable standards for primate acquisition, care and experimentation (including adequately trained personnel), the International Primatological Society (IPS) published the *IPS International Guidelines for the Acquisition, Care and Breeding of Nonhuman Primates* (IPS, 1993). These set out general principles together with three separate codes of practice which provide guidance on minimum standards of housing and environmental enrichment, levels of training for care-giving staff, and health care. With regard to weaning age, the guidelines state that the young of most species should remain in contact with their mothers for one year to 18 months.

The IPS guidelines provide the first practical step towards attaining minimum international standards of primate housing and care. However, these guidelines are not mandatory. In 1995, in view of the variation in standards for purpose-bred primates, the Federation of European Laboratory Animal Science Associations (FELASA) issued a statement of support for the establishment of a breeders accreditation scheme. No such scheme was established and consequently the onus is on individual countries to provide their own means of monitoring standards. Proper accreditation is vital to help ensure that acceptable standards of housing and care are maintained and to act as an incentive for suppliers to upgrade their facilities and take control of trapping so that it is done in a humane manner.

4.2.2.5 Home Office authorization of overseas centres

In the UK under the ASPA, approval for the acquisition of primates from overseas (non-designated) breeding or supplying centres will only be given if the conditions at the breeding or supplying centre are acceptable to and approved by the HO. However, standards at these centres need not meet the HO *Code of Practice for the Housing and Care of Animals in Designated Breeding and Supplying Establishments* in order to be approved. These standards are

in any case minimum and not ideal ones and are insufficient to ensure that all physical, psychological and behavioural requirements are met.

Although centres are inspected on initial application for approval, some approved non-designated sources have not been re-inspected for six years. Instead, documentary information is provided to the HO by the breeding or supplying centre itself, or by primate users on its behalf. The RSPCA believes this to be a serious failing of the regulatory system, whether it reflects an inadequate number of HO inspectors available to make such visits or the level of priority given to the issue. The HO presumably would not accept the word of a user establishment in order to license a UK primate breeder or supplier, and the same standards should apply on an international basis. This is an issue the RSPCA would ask the primate sub-committee of the APC to consider as a matter of urgency. The Society also believes that, with the number of HO inspectors being increased to 33, regular visits to overseas primate suppliers should be an essential part of their work programme for as long as primate imports continue.

Variation in standards of housing, husbandry and care exists not only between overseas breeding and supplying centres, but also within them. This is because such establishments supply animals to a number of countries, each of which may have different standards that must be complied with. Although conditions for primates destined for use in the UK must be approved by the HO, it has no jurisdiction over animals bred or kept outside the UK that are destined for supply to other countries. Scientists and regulators in these countries are prepared to use and/or accept data from primates despite the poor welfare conditions the animals are kept in prior to transport.

This presents a serious moral question. Should UK scientists and institutions continue to be allowed to use suppliers that do not meet UK standards for all their animals (while informed, responsible users, as prospective customers, and the HO, as UK regulators, exert what influence they can in favour of improved standards)? Or should such overseas suppliers be disallowed altogether, regardless of whether there is an alternative source? To date, the HO has never refused approval of a non-designated overseas centre without an alternative source being available. The consequences of any possible action in this respect need to be fully evaluated before a decision is made in order to ensure that the best deal for the animals is secured. This is another matter the RSPCA would ask the primate sub-committee of the APC to consider.

Concern 3

The standards of housing, husbandry and care for primates in non-designated overseas breeding and supplying establishments are not uniform and there is inconsistent, and sometimes very little, consideration given to the animals' behavioural, social and physical needs. Few countries outside the EU have detailed legislation to control standards and existing legislation is often not enforced.

Recommendation 3

Welfare conditions in breeding facilities in source countries should be regularly assessed and monitored by the HO against standards expected under the *IPS Guidelines for the Acquisition, Care and Breeding of Non-Human Primates* and immediate improvements promoted where necessary.

No primates should enter the UK unless there is evidence that they have been born and reared under conditions equal to or exceeding the minimum standards laid out in the IPS guidelines. Similarly, no primates should be re-exported for research or breeding unless standards at the establishment to which they will be sent are at least equal to those laid out in the IPS guidelines.

Proper accreditation is vital to ensure that animals are held under acceptable conditions. A European and/or international primate breeders accreditation scheme should be formed with appropriate input from specialists in primate welfare.

Concern 4

Young primates are commonly weaned (removed from their mothers) at six months and sometimes as early as three months. Early weaning can have profound deleterious effects on infants' well-being and serious implications for social and sexual dysfunction in adulthood. This compounds suffering due to confinement in captivity, and may have repercussions for the validity of scientific data obtained from captive primates.

Recommendation 4

There is a strong scientific case against early weaning. The HO should insist that designated UK breeding establishments, and non-designated overseas breeding establishments supplying to the UK, allow primate infants to remain with their mothers until they are at least 12 months old. Infants destined for breeding should remain with their mothers until they are 18 months old. The captive care and breeding committee of the ISP should request that the appropriate regulatory bodies of all other countries using primates encourage their sources to do likewise.

Concern 5

The RSPCA is concerned that the training provided for care-giving staff working in primate facilities in source countries is inadequate for them to understand the needs of primates and to provide for the welfare of primates in their care.

Recommendation 5

Specific training should be provided for care-giving staff working in the primate facilities of source countries. Assistance should be sought from the captive care and breeding committee and education committee of the ISP, and other organizations, like FELASA and the International Council for Laboratory Animal Science (ICLAS), that are already involved in the teaching of laboratory animal personnel abroad.

Concern 6

Detailed information on the standards of housing, husbandry and care at non-designated overseas breeding centres supplying to the UK is not readily available to all those involved in primate use under the ASPA. This prevents users from making informed choices about primate supply or performing a proper assessment of the full (lifetime) costs to the primates involved.

Recommendation 6

Information on the standards of housing, husbandry and care at all non-designated overseas breeding and supply establishments should be made readily available by the HO to primate users and to local ethical review processes. In addition, the HO should publish details of the information and standards required for authorization of these sources.

Concern 7

It appears that, in the past, the number of HO inspectors and/or HO resources were insufficient for non-designated overseas sources of primates to be inspected frequently.

Recommendation 7

The expanded HO inspectorate should make more frequent inspection of non-designated overseas breeding and supplying establishments a priority. The expansion should enable the inspectorate to be more proactive in raising standards of primate care and welfare, and to play a greater role in developing and promoting strategies for replacement, reduction and refinement, at designated UK and non-designated overseas breeding, supplying and research establishments.

The RSPCA understands that the primate sub-committee of the APC has sourcing of primates in its work programme and seeks assurance that the issue of inspection and approval of overseas breeding and supplying establishments is being addressed as a matter of urgency.

4.3 CITES controls on primate importation

All primate species are currently listed as either endangered or potentially endangered under the CITES. Permits are required for the movement of all CITES-listed species between countries party to the Convention. Primates regarded as being in danger of extinction are listed in Appendix I of CITES. Trade in these species is only authorized under exceptional circumstances. Appendix II lists species that are not necessarily threatened with extinction in the immediate future, but may become so unless their trade is regulated. All of the primates commonly used in research in the UK are listed in Appendix II.

4.3.1 CITES implementation

Since 1 June 1997, CITES has been implemented within the EU by Council Regulation (EC) 338/97 on the Protection of Species of Wild Fauna and Flora by Regulating Trade Therein, and Commission Regulation (EC) 939/97. These regulations set out the rules for the import, export, sale and movement of CITES-listed species. They are enforced in the UK by the Customs and Excise Management Act 1979, and the Control of Trade in Endangered Species (Enforcement) Regulations 1997 (S.I. No. 1372). Prior to 1997, CITES was implemented with Council Regulation 3626/82 and Commission Regulation 3418/83 and its modifications and updates. The former regulations needed to be replaced for three reasons:

- to take into account scientific knowledge acquired since their adoption
- to adequately reflect the current structure of trade
- to cope with the abolition of internal border controls which resulted from the single market (this made necessary the adoption of stricter trade control measures at the EU's external borders).

In some respects, the new regulations are stricter than CITES itself; they include certain non-CITES-listed species and have stricter welfare requirements for live animals. The species to which the legislation applies are listed in four Annexes (A-D) to the Council Regulation 338/97.

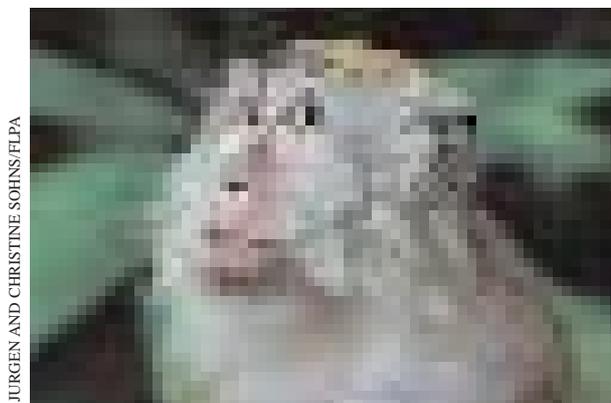
- **Annex A** – all CITES Appendix I species plus certain others (including some non-CITES-listed species) considered to be in need of a similar level of protection (for which the EU has adopted stricter domestic measures). Captive-bred specimens of Annex A are treated as Annex B, except for sale control purposes.
- **Annex B** – all CITES Appendix II species plus certain others (including some non-CITES-listed species) considered to be in need of a similar level of protection.
- **Annex C** – all CITES Appendix III species, except those for which member states have entered a reservation and which are included in Annex D.
- **Annex D** – certain non-CITES-listed species that have been imported into the EU in sufficient numbers to warrant monitoring.

Species listed in Annexes C and D are controlled primarily for monitoring purposes. For these species a self-completed import notification form must be presented to customs prior to the arrival of the animals, together with the relevant export permit(s) or certificates(s) of origin issued by the management authority in the exporting country. Applications for permits are referred to a CITES scientific authority for advice on the conservation status of the species concerned.

The old Regulation 3626/82 stated that permits must be obtained to move any species listed in Annex C Part 2 (C2) of the regulation into or out of the EU. C2 species were subject to stricter import conditions than CITES Appendix II and III species. Primates listed in Appendix I were subject to further restrictions. Under the new regulations, all Annex A (Appendix I) and Annex B (Appendix II) species are subject to stricter movement controls. Before granting a permit, the issuing management authority (in conjunction with an independent, appropriately qualified scientific authority) must be satisfied of a number of things. These are outlined below.

- Transport of all live specimens must be in accordance with EU legislation on transport of live animals (see Section 4.7). Furthermore, the transport of live specimens must be in accordance with the CITES *Guidelines for Transport* (or the IATA *Live Animals Regulations* in the case of air transport) and live animals must be conveyed to their destination as soon as possible.
- The old regulations contained no provisions on monitoring of compliance, investigation of infringements, sanctions, seizure, confiscation and related coordination. The new regulations establish an enforcement group consisting of representatives of each member state's authorities with responsibility for monitoring compliance with the regulations and for investigating infringements. Furthermore, the new regulations oblige member states to have adequate legislation on sanctions.
- Article 12.1 of Regulation EC 338/97 obliges member states to designate customs offices for carrying out checks and formalities and to state which are specifically intended to deal with live animals. The latter will necessarily have to be the same as those designated under European veterinary legislation. Designated customs offices must have sufficient and adequately trained staff. They must further have accommodation for live animals in accordance with EU legislation on the transport and accommodation of animals. Customs offices must carry out the necessary document checks and, in some cases, examination of the animals. This may involve taking samples with a view to analysis or more detailed checks.

- There is a new requirement in the regulations concerning shipments of live animals. The part of the import permit to be completed by customs must now contain information on the number of dead animals in the shipment at the time of arrival. This is important in view of the possible measures that could be taken to improve transport conditions or to restrict trade in species that are subject to high transport mortality.



4.3.2 Prepared and shipped

Article 9.5 of Regulation (EC) 338/97 states that live animals transported into, from or within the EU, or held during any period of transit or transshipment shall be 'prepared and shipped so as to minimize the risk of injury, damage to health or cruel treatment'. This applies to all live animals in Annexes A to D.

In the absence of a definition of 'prepared and shipped', the term has generally been applied to the act of packing the animals prior to export and to international transport (Maas, 2000). This ignores the reality that all procedures experienced by live animals selected for international trade (including those prior to packing and international transport), play a decisive role in determining an individual's subsequent chances of survival, susceptibility to injury, damage to health, or cruel treatment. Capture, restraint, handling, human proximity, social disruption, mixing, isolation and/or crowding, confinement, lengthy waits, loading, transport, inappropriate ambient temperatures and humidity levels, unfamiliar diets, injury and exposure to pathogens may all be stressful, particularly for wild-caught animals.

Without a proper definition of 'prepared and shipped', the welfare of the animals prior to packing is purely in the hands of the trader. Animals that die prior to export are not counted in international trade mortality figures, because trade statistics are based on the actual number of animals exported. Weak links at any stage of the trade process can diminish an animal's chances of survival, and the quality of care provided at each juncture will affect morbidity and mortality levels at subsequent stages. The issue of defining 'prepared and shipped' is currently being considered by the transport working group of the CITES animals committee.

Concern 8

CITES currently only considers cruelty, morbidity and mortality sustained during packing and international transport. This does not take into account events that occur between the point at which a live animal is selected for entry into international trade, and the point at which it leaves a border post of the country of origin. The welfare, morbidity and mortality of animals during capture, internal transport and holding must be considered in order to more adequately assess the impact of international trade on populations of CITES-listed species.

Recommendation 8

CITES management authorities (DEFRA in the UK) should ask the transport working group of the CITES animals committee to define 'prepared and shipped' in Article 9.5 of Regulation (EC) 338/97 as referring to the treatment of animals at all stages of trade, including those prior to export. It should be recognized that capture, handling, housing, husbandry and domestic transport are crucial factors in morbidity and mortality.

4.3.3 Restrictions on importing primates into the EU

Article 4.6 of Regulation (EC) 338/97 lists certain criteria which can be invoked by the EC CITES committee in order to restrict the import of a particular species into the EU. There will be cases where the scientific authority of a member state advises its management authority not to issue a

permit for an Annex A or B species. This may be because it considers that import would be harmful to the conservation of the species or population, because there are other conservation factors against import, or because live specimens of an Annex B species are subject to high transport mortality or not likely to survive in captivity.

In such cases, the other member states' authorities must be informed as soon as possible and must suspend the issue of import permits (since import restrictions have to be applied throughout the EU) until a restriction is established under Article 4.6. This requires a negative opinion of the scientific review group and EC CITES committee, and consultation with affected member states and source countries. A negative opinion on a species is given if actual or anticipated levels of trade will have a detrimental impact on its conservation status or range, if it suffers high transport mortality or is unlikely to survive in captivity for a considerable proportion of its potential lifespan, or if it poses an ecological threat to indigenous flora and fauna. The scientific review group and EC CITES committee also make positive opinions where, for example, an export quota for a particular species will not be damaging to its conservation status in the wild.

Table 4.1 lists, for primates commonly imported to the UK, the species, sub-species or source countries for which the EC CITES scientific review group has expressed a negative or positive opinion from 1997 to 2001. The negative opinions may or may not have been translated into formal import suspensions under Article 4.6 and the positive opinions may or may not have been translated into export quotas. All species listed are CITES Appendix II (EC Annex B) species. Conservation status classifications according to the 2000 IUCN red list of threatened species are also given.

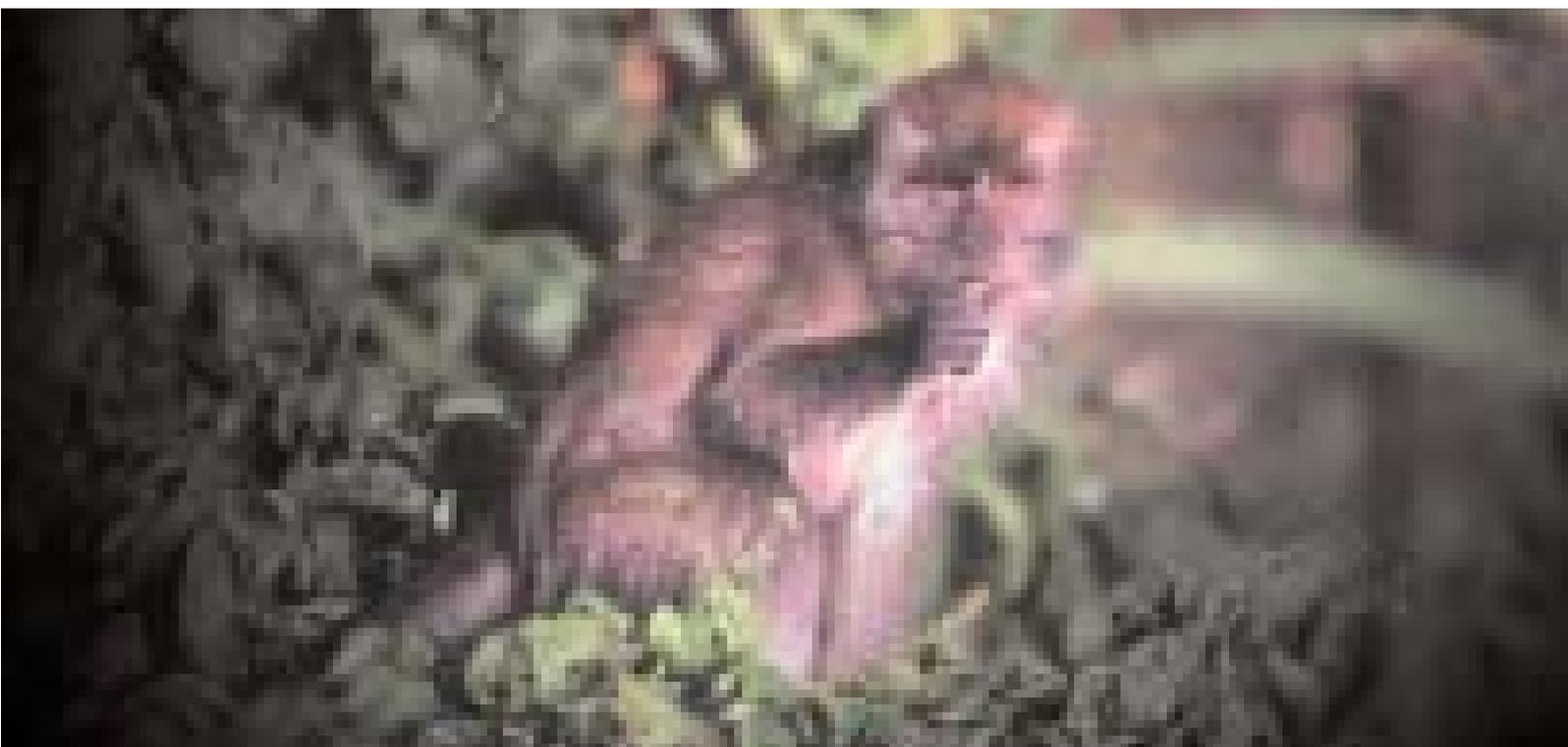


Table 4.1 Species, sub-species or source countries of the principal primate species imported to the UK for which the EC CITES scientific review group has expressed a negative or a positive opinion.

Species/ sub-species	IUCN red list 2000	Import restriction under Article 4.6 (refers to wild animals unless stated otherwise)			CITES export quota (refers to wild animals unless stated otherwise)			
		Date	Country	Notes	Country	Year	Quota	Notes
<i>Macaca fasicularis</i>	Lower risk/near threatened	24/9/00	Bangladesh	wild	Indonesia	2001	200	captive-bred
		24/9/00	India	+ve opinion	Indonesia	2000	1,080	captive-bred
					Indonesia	1999	1,080	captive-bred
					Indonesia	1998	650	captive-bred
					Mauritius	1999	4,000	
					Mauritius	1998	4,000	
					Mauritius	1997	4,000	
<i>Macaca mulatta</i>	Lower risk/ near threatened							
<i>Saimiri sciureus</i>		27/7/97	Suriname	+ve opinion	Guyana	2001	2,200	
					Guyana	2000	2,200	
					Guyana	1999	2,200	
					Guyana	1998	2,200	
					Guyana	1997	2,200	
<i>S. s. sciureus</i>					Suriname	2001	1,000	Live
					Suriname	2000	1,000	
					Suriname	1999	1,000	
					Suriname	1998	1,388	
					Suriname	1997	1,388	
<i>Papio hamadryas spp.</i>	Lower risk/near threatened	24/9/00	Guinea-Bissau		Ethiopia	2001	1,020	Live and trophies Live and trophies
		24/9/00	Liberia		Ethiopia	2000	10	
		24/9/00	Libyan Arab Jamahiriya		Tanzania	1998	2,000	
					Tanzania	1997	2,000	
<i>P. h. anubis</i>					Tanzania	2001	2,000	Live
					Tanzania	2000	2,000	
					Tanzania	1999	2,000	
					Tanzania	1998	2,000	
					Tanzania	1997	2,000	
<i>Cebus apella</i>		22/7/97	Suriname	+ve opinion	Guyana	2001	600	Live
					Guyana	2000	600	
					Guyana	1999	600	
					Guyana	1998	600	
					Guyana	1997	600	
					Suriname	2001	114	
					Suriname	2000	114	
					Suriname	1999	114	
					Suriname	1998	151	
					Suriname	1997	151	

Where an Article 4.6 restriction is established by the Commission, the Commission Regulation (EC) 939/97's Article 41.4 provides that member states must immediately reject all permit applications for as long as that restriction is in place. That said, Article 41.4 of the Commission Regulation (EC) 939/97 provides that, unless specifically decided otherwise, Article 4.6 restrictions do not apply to animals that are born and bred in captivity in accordance with the criteria laid down in Article 24 of the Commission Regulation (EC) 939/97. First-generation animals are classified as captive-bred.

Furthermore, animals of Annex A species are treated as Annex B species if they were captive-bred in accordance with these criteria (Regulation (EC) 338/97 Article 7.1.a). These criteria also apply to specimens of Annex B species or animals required under exceptional circumstances for the advancement of science or essential biomedical purposes (Directive 86/609 EEC applies). In the latter case, the species must be the only suitable species and there must be no captive-bred animals available. It is for these reasons that it is legal to import captive-bred and wild CITES Appendix I (Annex A) and Appendix II (Annex B) primates for use in research and testing.

Article 4.6 restrictions are published by the EC in the *Official Journal of the European Communities* on a quarterly basis. However, import restrictions under Article 4, paragraphs 1, 2 and 6, can be checked on the Internet web site created for that purpose by the World Conservation Monitoring Centre (WCMC). Sometimes individual countries stop imports and exports for health reasons. For example, Japan stopped importing primates from Africa and South East Asia in 1990 to prevent the entry of *ebola* virus. The importation of live primates into the EU originating in or coming from Zaire was prohibited in 1995 under Commission decision 95/171/EC following the *ebola* outbreak in that country.

4.3.4 CITES implementation in the UK

The UK CITES management authority is the global wildlife division of the wildlife and countryside directorate of DEFRA (formerly of DETR), which is responsible for ensuring that the Convention is properly implemented and enforced in the UK. Enforcement of the Convention at borders is primarily carried out by HM Customs and Excise, while inland, the police and DEFRA's wildlife inspectorate have lead responsibility. The HO oversees the treatment of primates destined for use in research and testing from the time they arrive at the designated research establishment, and some shipments are inspected by the HO on arrival.

The wildlife licensing and registration service of the global wildlife division is responsible for the issuing of permits and certificates for the import, export and commercial use of CITES-listed animals. In accordance with the provisions of the Convention, applications for CITES permits are referred to a designated CITES scientific authority for advice on the conservation status of the species concerned. The UK scientific authority for animals is the

Joint Nature Conservation Committee (JNCC). This committee is required to determine, among other things, whether the intended accommodation for an imported Annex A primate is adequately equipped to conserve and care for it. In the case of Annex B primates, importers are obliged to ensure that the intended recipient of an animal (the first keeper following any period of quarantine or other confinement for sanitary checks and controls) is adequately informed of the accommodation, equipment and practices required to care for it.

All primates imported directly into the UK have to be issued with a CITES import permit by DEFRA. These permits are valid for 12 months and can be used for any number of animals below the number applied for on the licence. Two types of permits are also issued for exporting animals from the EU:

- i) export permits for direct movement of animals originating in the UK to a country outside the EU
- ii) re-export certificates for the export of previously imported animals.

Prior to 1993, EC CITES permits were also issued for movements within the EU, but with the advent of the single market there is now no legal requirement for these. Once CITES-listed species enter the EU these animals do not need further CITES authorization to move between member states, although evidence must be provided to confirm that they were imported or acquired lawfully (for example, the holder's copy of the import permit).

As with all CITES-listed animals, commercial trade in wild-caught, Annex A primates is not permitted (Regulation (EC) 338/97 Article 4.1.d). However, wild-caught Annex A animals can be imported under exceptional circumstances. That is, for the advancement of science or for essential biomedical purposes (if the species is the only one suitable and there are no captive-bred animals) or for research or education aimed at the preservation or conservation of the species (Regulation (EC) 338/97 Article 4.1.a.ii, first indent).

Commercial trade may be permitted in Annex B and captive-bred Annex A animals, but a special certificate is required. Before authorizing the import of these specimens, DEFRA has to be satisfied of the points below:

- That a copy of the export permit issued by the exporting country is provided. This shows that the imported species were legally obtained in the country of origin.
- That the import (capture or collection) will not have a harmful effect on the conservation of the species or decrease the population concerned (Regulation (EC) 338/97 Article 4.1.a.i). For wild-caught Annex A animals, that they are required for essential biomedical research, or for educational, research or breeding purposes aimed at the preservation or conservation of the species.

- That there are no conservation reasons for refusing importation (Regulation (EC) 338/97 Article 4.1.e/ 4.2.c). This decision is reached in consultation with the JNCC.
- That the Commission has not established an Article 4.6 import restriction (Regulation (EC) 338/97 Article 4.1 and 4.2).
- That the intended accommodation is adequately equipped to conserve (house) and care for the animal(s) concerned. The JNCC makes this decision for wild Annex A animals under Regulation (EC) 338/97 Article 4.1.c. These animals are also subject to a movement restriction and a certificate is required from DEFRA before they can be moved to a location other than that specified in the import permit.

Holders of Annex B animals intending to pass them on to a third party are required to ensure that the intended recipient is adequately informed of the accommodation, equipment and practices required to care for the animals properly (care is not defined). A description of the housing facilities must be submitted to DEFRA under Regulation (EC) 338/97 Article 4.2.b in order for it to judge whether they are adequate. Where an intended recipient is based in another member state, an application must be made to the relevant management authority. Applications from dealers who have not yet identified a recipient will not be considered.

- That the recipient has been approved by DEFRA in its capacity as the UK's designated 'competent authority' under Council Directive 92/65/EEC (the Balai Directive). In order to obtain approval, premises must be inspected and reports produced by veterinary officers (who are primarily concerned with health and not welfare). Plans of accommodation must also be seen and approved. This allows the recipient to comply with the AHA and Rabies Order 1974, as amended.

The JNCC takes the view that it is unlikely that many people will be suitably equipped to house and care for primate species and for this reason have advised that such imports be confined to zoos, scientific institutions, or specialized private keepers approved under the Balai Directive.

Applications for export permits are subject to similar criteria. However, these do not apply to re-imported animals, or worked animals acquired before 1 June 1947. Internal Community certificates are necessary to provide documentary evidence that Annex A or B specimens to be re-exported have been imported in accordance with Regulation 338/97.

Concern 9

Although there is assessment by the JNCC of the suitability of facilities provided by import permit applicants for accommodating Annex A primates, this is not the case for Annex B primates. Instead, the importer of Annex B primates is obliged to ensure that the intended recipient is adequately informed of the accommodation, equipment and practices necessary for the primates to be well cared for. The RSPCA is concerned that the importer may not have the specialist knowledge required to safeguard the welfare of imported primates.

Recommendation 9

The JNCC should assess the suitability of facilities provided by import permit applicants for accommodating Annex B primates as well as Annex A primates.

4.3.5 Accuracy of CITES records

Only a proportion of all CITES import permits issued are actually used. This is because importers apply for licences in anticipation of shipments, and the licences often expire before they are required. Also, in many cases the number of animals actually moved is less than the number listed on the permit, since importers may overestimate the number of animals to allow themselves flexibility. However, once a permit has been used, information on the date of use and the actual number of animals moved is returned to DEFRA where the records of permits issued are amended accordingly.

The CITES import permits issued by DEFRA only cover primates imported directly into the UK from outside the EU and not those imported indirectly via other EU member states. In such cases the CITES import permit would be issued by the original importing country (**see Section 4.5**). The same is true of CITES export permits. Consequently, it is not possible to monitor accurately the total number of primates imported to (and exported from) the UK from DEFRA CITES permit data.

Primates imported for use in research or testing can be classified on their CITES import permit as being imported for scientific, bio-medical research, commercial or breeding purposes, according to their destination and intended use. The decision as to which of these categories is appropriate for a particular import is made by the permit applicant and not by the permit-granting authority. For example, a shipment of long-tailed macaques received by a designated supplier could be classified as being imported for commercial purposes, or if they were ultimately destined for a research establishment, for scientific purposes. Imports for breeding purposes may also be research-related if the intention is to breed animals for use in scientific procedures. Although guidance is given on the criteria for classification, there are no controls on

accuracy. The decision whether a primate is classified as wild-caught, first-generation or captive-bred in applications for CITES import permits also lies with the applicant. This can result in wild-caught animals being wrongly classified as captive-bred, or inconsistency in classification where the status of a primate may be under debate, such as in the case of island-bred animals.

Concern 10

CITES documentation is not required to move primates into the UK from other EU member states. Consequently the importation of primates that have entered the EU without CITES documentation cannot be prevented, nor can the numbers of primates entering the UK via other EU countries be monitored. This makes it impossible for interested parties to accurately monitor primate imports to the UK for the purposes of achieving the aim of CITES, and for safeguarding primate welfare and identifying areas of concern.

Recommendation 10

DEFRA should request that a copy of the CITES import permit which initially authorizes entry of primates to the EU should be submitted with all imports into the UK from other EU member states. Records of all such indirect entries should be collected centrally by DEFRA and published on an annual basis along with records of direct entries.

Concern 11

The UK CITES management authority (DEFRA) guidance on the classification of primate imports with respect to the purpose of import is not clear in that the categories of purpose are not mutually exclusive and not well-defined. Furthermore, decisions regarding classification of purpose and source (wild-caught, first-generation or captive-bred) are made by the permit applicant rather than the CITES authority and proof of the source of imported animals is not required. This means it is not possible to monitor accurately the purposes for which primates are imported to the UK and consequently data obtained under the present system are not meaningful.

Recommendation 11

For better ongoing control and assessment of primate trade, DEFRA guidance on classification of the purpose of import should be amended so that primates imported to the UK (particularly for use in scientific procedures) are classified into mutually exclusive and well-defined categories. The information supplied on source and purpose of primate imports should be verified by DEFRA before licences are granted.

4.4 Controls under the AHA

All primates imported into the UK have to be licensed in advance under the AHA, and specifically under the Import Controls under the Rabies (Importation of Dogs, Cats and Other Mammals) Order 1974, as amended. Licences are granted by the animal imports section (pets and quarantine branch) of DEFRA (formerly of MAFF) or the Scottish Executive Environment and Rural Affairs Department (SEERAD). This requirement applies to animals moved on to another port or airport for re-export, but not to those that arrive and depart from the same terminus without entering the UK. Details of such movements are available from the animal holding facilities at the port or airport. Live animals may arrive only at designated ports and airports and, on entering the UK, must be transported directly to DEFRA or SEERAD-approved quarantine premises, by carrying agents authorized by DEFRA or SEERAD, for six months quarantine.

Import licences under the AHA are valid for six months, and can be used for any number of animals below the limit shown on the licence. This means that, as with CITES import permits, the number of animals shown on the licence does not always reflect the number of animals actually imported. However, the carrying agent must, within 24 hours of the landing, inform the department of the animals' arrival and their conveyance to the quarantine premises. The veterinary/medical supervisor must also confirm the arrival of the animals to DEFRA within seven days. Details of the actual numbers of animals imported are recorded at the port of entry, so it should be possible for accurate information on the actual number of primates imported into the UK to be collated centrally.

At present, however, the import database of the animal imports section (pets and quarantine branch) of DEFRA is not amended to reflect the number of animals actually imported. Instead it reflects only the number of animals shown on the import licences issued and this information is not publicly available. Also, as licences are issued in advance and are valid for six months, it is not possible to tell from these records in which year a licence is used. Therefore, although the mechanism for monitoring all imports of primates into the UK is in place, the current system of collating information makes any attempt at full analysis impossible.



MIKE LANE/SPCA PHOTOLIBRARY

Concern 12

The current DEFRA system of monitoring the primate trade makes any attempt at full analysis impossible. This is at odds with the conservation status of primates and the special provisions they receive under the ASPA through a different government department, the HO. The present database of import licences issued under the AHA by the animal import section (pets and quarantine branch) of DEFRA is not amended to reflect the number of animals actually imported into the UK, and only gives the number of primates shown on the import licences issued. Furthermore, this information is not made publicly available. The present database of import permits to the UK issued under CITES by the wildlife licensing and registration service of the global wildlife division of DEFRA is amended to reflect actual imports, but indirect imports are not included.

Recommendation 12

Following the assimilation of MAFF and the DETR's wildlife and countryside directorate into DEFRA, there is unique potential for accurate monitoring of all primates entering the UK (including those from the EU), particularly under the current quarantine licensing system. A centralized system should therefore be introduced by DEFRA to record the date of use of each licence, the number of animals actually imported, and the species, source and country of origin, together with the purpose of import. This information should be made publicly available on an annual basis.

4.5 Importation of primates via other EU countries

Until 1993, most primates imported into the UK for use in scientific procedures were transported by air directly from their country of origin. However, in June 1993 the British Union for the Abolition of Vivisection (BUAV) started a campaign against airlines carrying primates into the UK. As a consequence, most major airlines now refuse to carry primates into this country if they are for use in research and testing. This has resulted in an increase in the number of primates entering the UK by indirect routes. Animals are flown from their country of origin to a European destination and then transported by road and ferry to the UK.

This increase in indirect transport to the UK has had several worrying repercussions. Firstly, because CITES import permits are not required for primates entering the UK from other European countries, it is now even more difficult to ascertain the true scale of trade in primates for research and testing, especially given that MAFF did not, and DEFRA do not, collate and publish primate import licence data. Jones and Jennings (1994) calculated that in 1993 an estimated 34

per cent of MAFF-licensed primates were likely to have been imported into the UK via another EU country. This meant that in addition to the 1,146 primates imported directly, a further 977 animals came into the country by an indirect route. Secondly, transport from Europe by road and ferry represents a further stressful stage in acquisition that can add 30 hours or more to the overall journey time. There is no requirement to check the health and welfare of primates, following an initial check of documentation, identity and possibly health, on entry into the EU, until the animals arrive at their quarantine premises. Neither total primate imports nor the number of primates used by UK research establishments decreased in the three years following the launch of the BUAV campaign.

4.6 Conditions associated with transport

Although transit conditions and the negative impact of transportation on animal welfare have been well documented for a number of species, particularly domestic livestock and poultry, there is little data for primates (see Wolfensohn, 1997, for a brief review). However, it is widely acknowledged that a change in environment or social status is stressful for most species. Given that primates are highly reactive to unfamiliar stimuli, and are intensely social animals, transport over long distances, and by indirect routes, is likely to be extremely stressful for them. Certainly, shipping can result in significant weight loss (Malaga et al., 1991) and even relatively trivial procedures in the laboratory, such as cage change, can cause prolonged disturbances in physiological parameters, such as heart rate (Line et al., 1989). An empirical study to identify potential physical, physiological and behavioural indicators of welfare in primates that could allow the overall impact of transportation to be quantified is underway at Oxford University (Home Office, 2000b).

However, action is needed now; primates die as a result of current transport conditions. In 1997, one long-tailed macaque was found to be dead on arrival in the UK from the Philippines. The cause of death was given in a parliamentary question as 'probably trauma to the head' (Hansard reports of Parliamentary Questions, 28 June, 2000). In 1998, three long-tailed macaques were found to be dead on arrival in Paris from the Philippines. The cause of death was not ascertained, but was thought to be due to a combination of factors including packing the animals into containers too small for them to stand up and turn around freely, and poor ventilation (Hansard reports of Parliamentary Questions, 28 June, 2000).

The death of primates in transit is totally unacceptable. There must be a stricter system of regulation and sanctions in place to prevent such tragedies occurring in the future.

During transport from one location to another, primates are subjected to major stressors which can have serious effects

on both their psychological and physical well-being. The transported animals are forcibly removed from their familiar environment and social group, with no means of returning. They are then confined, usually singly, in small, unfamiliar containers from which there is no means of escape and subjected to a series of unpredictable environmental disturbances over which they have no control. It has been noted that control appears to promote well-being in primates and other animals in both psychological and physiological terms (Overmier et al., 1980; Mineka et al., 1986; Buchanan-Smith, 1997; Sambrook and Buchanan-Smith, 1997).

In transit, primates may be exposed to extreme temperatures, pressure, humidity and lighting, excessive noise and vibration from the vehicle or aircraft, severely restricted movement inside the transport container, lack of food and water for long periods of time, motion sickness, exposure to unfamiliar and fearful stimuli, and unpredictable movement during changeovers from one form of transport to another (Maas, 2000). During road transport, primates are subjected to additional disturbances such as uneven driving and alternating moving and stationary periods. On release, the animals must undergo six months in quarantine and acclimatize physiologically and behaviourally to completely unfamiliar environmental and social conditions (Yoshida, 1981). Their new environment is likely to be cramped and barren.

4.6.1 Transit from country of origin to the UK

The stress for primates associated with their movement from country of origin to the UK is influenced by several factors. These include the distance from the initial location of the animals to the point of export, the means of containment and transport, the distance between the country of origin and the UK, the route taken and the location of the final destination. The total journey can be divided into a number of stages, each contributing to the overall stress and duration of transportation. These stages are outlined below.

4.6.1.1 Breeding centre to nearest international airport

Prior to export, macaques are usually caged singly or in pairs, health screened and quarantined for two to six weeks. They are then transported to the nearest international airport in crates with individual compartments typically 0.054-0.108 m³. The duration of this journey can vary enormously depending on the location of the breeding centre and the local transport network within the country. Where the breeding centre is located near to an international airport, as is usually the case in Mauritius or Israel for example, journeys can be as short as 30 minutes. In the Philippines, however, primates typically travel many hours to get to Manila airport. The situation is even worse in China where the animals have to be brought from regional primate centres to a central depot. This takes at least 24 hours by road and the journey can last several days, including overnight stops at holding centres which subject the animals to further environmental disturbance.

4.6.1.2 Boarding procedures at airport

Boarding procedures vary according to the country of export, but in all cases, shipments of primates must be taken to the airport at least four hours before departure. It is common for animals to be crated for 12-20 hours prior to aircraft loading to allow time for catching, packing, airport delivery and paperwork processing. Any delay in the departure of the flight will add to this already lengthy waiting period. However good the local airline staff, there is no insurance against hazards including last-minute changes of schedule, over-flying scheduled stops, mechanical failures, staff strikes and indifferent airport staff en route. Delays during travel imply repeated handling, changes in holding cages with little time allowed for adaptation to each new environment, and variations in both diet composition and feeding schedule. These factors may have a profound effect on the ability of some age groups to recover body weight lost during transit (Malaga et al., 1991).

4.6.1.3 Airport in country of origin to airport in importing country

Flight times between exporting and importing countries are dependent on both the distance separating the two countries and the availability of direct flights between them. Flights involving stopovers in a third country add to the duration of the journey, and further stress the animals in transit by imposing an additional environmental disturbance. The shortest direct transit time to the UK from a non-European source is the five-hour journey from Tel Aviv in Israel. Flight times from China and the Philippines can be as long as 21 hours.

The reluctance of major airlines to transport primates, as a result of activist pressure, has led to some smaller airlines, with inadequate facilities and experience, taking on this function. This has further increased travelling time as primates are now flown into mainland Europe (often Paris) before being transported to the UK by road and sea. The change back to the road for the final leg of the journey within the UK adds to the animals' stress, yet this appears to have been accepted by primate users as a permanent method of transport. The average journey time from China to the UK via Paris is currently around 63 hours. If these animals were flown direct to the UK, it would be reduced to approximately 40 hours. Israeli Air, a major airline, will fly primates into the UK because they have their own handling staff on the ground. In June 2000, around 85 long-tailed macaques were transported by El Al to the UK from the primate breeding centre in Israel, even though the company stated in 1999 that it had stopped transportation of primates.

4.6.1.4 Disembarkation procedures at airport

The length of the disembarkation procedure varies according to the importing country. In the UK, a delay of around four hours is usual before the animals are cleared through customs and can be picked up by their recipient.

4.6.1.5 Airport in importing country to final destination

The duration of transit from the airport to the final UK destination depends on whether the shipment was flown directly to the UK or via an intermediate destination in the EU. Animals flown directly to the UK are transported by road to a DEFRA-approved quarantine facility. The journey time depends on the distance of the airport from the final destination. Until 1999, some animals would have been acclimatized to new conditions in a designated supplying establishment before being transported by road to laboratories. However, since the last UK supplier of imported primates, Shamrock Farm, closed down, animals are taken directly from the ferry terminals to the laboratories via brokers.

The RSPCA is aware that large numbers of primates enter the UK at Dover. In line with the airlines' decisions, some ferry companies have also declared that they will not carry primates and they only do so unknowingly. There is real concern that some importers may not declare the true nature of their cargo in order to avoid detection at embarkation ports. This quasi-smuggling has definite implications for primate welfare and may have implications for animal and human health; the Rabies Order 1974 very clearly prohibits

the smuggling of rabies-susceptible mammals into the UK. Some companies have spot checks and the RSPCA understands that at least at one consignment of primates has had to be returned to the Philippines as a result of some breakdown in the transport process. We believe that the HO has moral responsibility for primates destined for use in research and testing and should encourage ferry companies to clarify their policies.

Total journey times including all of these stages are typically at least 28 hours and in some cases 70 hours or more (Tables 4.2 and 4.3). This is extremely worrying given that controls on transport are inadequate to safeguard primates' welfare during transit (see Section 4.7). For example, there are no controls over the length of journeys or the maximum interval allowed before food and water must be provided. Furthermore, there is no requirement for health and/or welfare inspection of the animals before arrival at their destination. The RSPCA understood that EUPREN was established to attempt to find user-led solutions to these problems but so far it appears to have failed to do so. Clearly these issues need to be addressed and the responsibility must lie with those who wish to continue to use primates in research and testing.

Table 4.2 Longest and average recorded journey time for primates imported into the UK for research purposes during 1998 from China, the Philippines and Mauritius.*

Country of origin	Longest journey time	Average journey time
China	58 hours	52 hours
Philippines	48 hours	Estimated 30 hours
Mauritius	38 hours	28 hours

* From Hansard reports of written answers to parliamentary questions, 4 February 1999

Table 4.3 Mean journey time (hours) for primates imported into the UK for research purposes from Mauritius and China between 1998 and 2000.*

Year	Country of origin	Number of shipments (hours)	Mean journey time (hours)	Range
1998	Mauritius	30	28.15	26.00-38.75
	China	4	53.15	44.50-58.50
1999	Mauritius	23	29.18	27.25-34.00
	China	4	44.31	40.00-46.75
2000	Mauritius	21	34.00	26.75-38.50
	China	5	62.90	40.00-75.00

* Home Office data

4.6.2 Transport within the UK

As explained in **Section 3**, the primate species most commonly used in research and testing in the UK are the common marmoset, the long-tailed macaque and the rhesus macaque. Most of the marmosets and some of the macaques used are bred in captive breeding centres in the UK, some in-house which removes the need for transport from breeding colony to laboratory. Otherwise, there is a relatively brief journey within the UK from breeding to user establishment. However, transport of primates over shorter distances requires as much care and attention to detail as international journeys, and should still be regarded as a stressful procedure (Baskerville, 1999). Capture, handling and settling down to 'new neighbours' can be particularly stressful for these highly territorial and/or intensely social animals, and acclimatization has to be carefully managed.

Concern 13

Importing animals into the UK by indirect routes adds considerably to the duration and stress of transport. Each stage of the journey imposes a stress on the primates being transported. The longer the journey time and the more links there are in the chain of events, the greater the risk that animals will suffer from neglect or improper handling. Yet indirect routes appear to have been accepted by primate users as a permanent method of transport because of a widespread refusal of airlines to carry primates destined for research and testing. The number of animals entering the country by these indirect routes is not recorded.

Recommendation 13

An end to the transport of primates from source countries should be achieved as soon as possible. The RSPCA seeks assurance that the APC primate sub-committee will give this matter the attention it deserves. In the meantime, primates should be transported by the most direct means possible, with the minimum number of stages between departure and arrival at the final destination.

A means of avoiding a switch from air to road transport for the final leg of journeys to the UK should be investigated. For example, airlines could fly primates direct to the UK or primate users could charter planes to do so. Common sense alone dictates that direct flights into the UK are needed to keep journey times to a minimum.

As the regulatory authority responsible for the supply and use of laboratory animals, the HO should ensure that every possible action is taken to minimize both the duration of transport and the stress and discomfort involved for the animals.

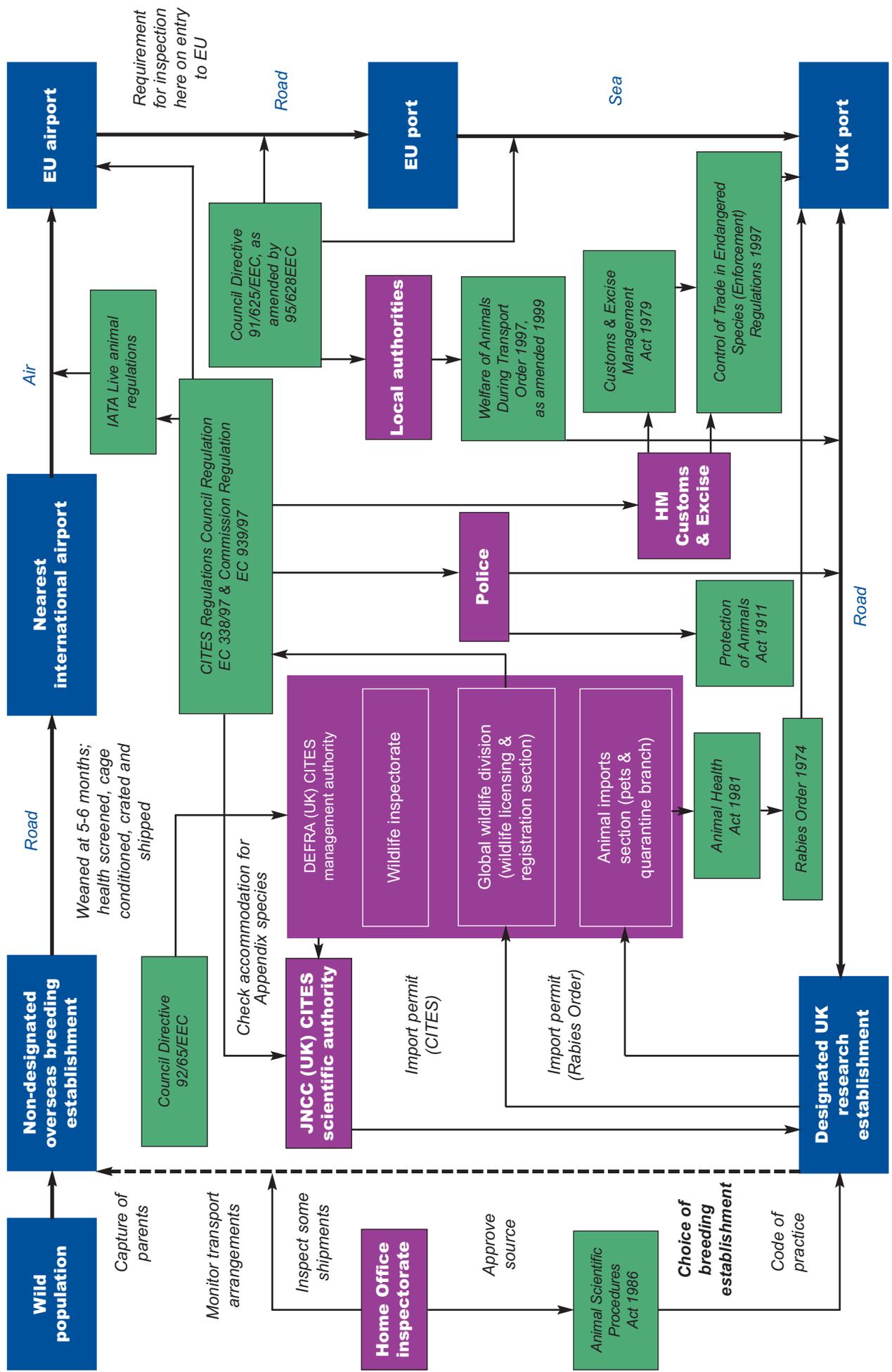
4.7 Controls on the transportation of primates

There are a number of regulations, both enforceable and voluntary, which cover the transport of animals within the EU and from countries outside the EU. However, outside the UK, these regulations are notoriously poorly enforced and difficult to monitor, and there is much variation between member states in, for example, veterinary control on imported animals (European Commission, 2000). **Figure 4.1** illustrates the specific points at which these controls on transport apply, and also shows the complete chain of responsibility for the acquisition and transport of primates to the UK for use in research and testing, including controls on importation and on use in research and testing.



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Figure 4.1 Flow chart of responsibilities during the acquisition and transport of primates to the UK for use in research and testing.



4.7.1 Welfare of Animals during Transport Order 1997

Council Directive 91/628/EEC on the Protection of Animals during Transport (as amended in 1995 by 95/29/EEC) covers the movement of animals, including primates, within the EU by road, rail, air and sea. This Directive is implemented in the UK under the Welfare of Animals during Transport Order 1997 (WATO) (amended 1999). The Order applies to all animals being transported in the course of business or trade. Inspectors are appointed to enforce the Order (on behalf of what was MAFF). Minor infringements attract a warning, while more serious infringements may result in a notice being served, or even in prosecution.

Under the WATO, animals must be transported (which includes loading and unloading) in a way that does not cause them injury or unnecessary suffering and specific provisions are set out for the means of transport and the treatment of animals in transit. For example, it requires that animals be given water and suitable food before their journey and at regular (but generally unspecified) intervals during the journey. The Order applies specific requirements (watering and feeding times, provision of route plans, specific journey times and resting periods) only to the transportation of farm livestock (cattle, sheep, pigs and goats) because these represent the majority of animals transported over long distances.

The Order was amended in 1999, to incorporate EC Regulation 411/98 which sets out the standards required of vehicles used for transport of livestock on journeys of more than eight hours. It also lays down specific requirements regarding vehicle access and ventilation, partitions and bedding, and the food and water carried on the journey. The amendment makes failure to comply with these standards an offence under the AHA.

There are no special provisions for primates despite the fact that they are the only laboratory mammals of which a significant proportion are imported into the UK from overseas. They endure journey times of up to 70 hours, 30 hours of which can be by ferry and road, generally singly housed in containers barely bigger than they are. Despite this, the Directive specifies no maximum journey time for the transport of primates, although Article 13 of the Directive allows for the fixing of maximum journey times for certain types of animals.

Under the WATO, all vertebrate animals undergoing journeys of distances greater than 50 km must be entrusted to the care of at least one person who is competent to safeguard their welfare. An exception may be made for animals being transported in secured receptacles which contain food and liquid in dispensers, that cannot be tipped over, and are sufficient for twice the anticipated journey length. The competence of the attendant must be gained either by specific training or equivalent practical experience. Schedule 8 Article 9 of the Order lays out the framework of competencies. Attendants are required to have knowledge of appropriate methods of handling, causes of stress, signs of stress and ill-health and how to reduce the symptoms of

these, how to care for animals that become unfit or injured during transport, and when to seek veterinary advice.

Attendants transporting livestock or horses on journeys of eight hours or more must have proved their competence either by obtaining a qualification approved by DEFRA or through an assessment of equivalent practical experience by their employer, their employer's nominee or an independent assessor from a recognized training body. All such assessments must meet with the approval of DEFRA and a certificate must be issued by the employer or assessor. There is no such system for attendants of transported primates.

Concern 14

The current legislation on live transport within the EU (particularly land and sea transport) does not ensure the welfare of primates during transit. There are no provisions on maximum journey times allowed or maximum intervals before food and water must be provided. Furthermore, live transport legislation is notoriously poorly enforced in most EU member states.

Recommendation 14

The UK government should lobby for the upcoming review of Council Directive 91/628 (as amended by Directive 95/29) on the Protection of Animals during Transport to include a maximum journey time to safeguard the welfare of primates during transport, and maximum intervals before food and water are supplied. There should be complete enforcement of live transport legislation by all member states.

Concern 15

There is no system of approval of competency by DEFRA of attendants of transported primates, and in some cases (in journeys below 50 km, for example) primates in transit are not accompanied at all. Without accompaniment, the welfare of transported primates cannot be assured, and without a system of approval there is no assurance that the staff accompanying primates have the specific knowledge required to look after their health and welfare during transport.

Recommendation 15

Primates should be accompanied on all journeys, including those below 50 km. Ensuring that staff are competent to handle and care for animals is central to improving the welfare of animals in transit. DEFRA should set up an independent system for ensuring that attendants of transported primates have the appropriate knowledge and ability to look after the primates' health and welfare during transport on all journeys.

4.7.2 International Air Transport Association (IATA) Live Animals Regulations

Directive 91/628/EEC (implemented in the UK under WATO) requires compliance where applicable with the International Air Transport Association (IATA) live animals regulations (updated annually) and the CITES guidelines for transport. Transport of CITES-listed animals (including all primates) must also comply with CITES guidelines for transport and preparation for shipment of live wild animals. The CITES guidelines are intended to cover all forms of transport, although CITES have accepted the IATA regulations for air transport.

The 1992 IATA live animals regulations formed the basis of the *Guidelines for the Care of Laboratory Animals in Transit* published by the Laboratory Animal Breeders Association of Great Britain Ltd (LABA) and the Laboratory Animal Science Association (LASA) (LABA/LASA, 1993). Although similar to the IATA regulations, these contain extra guidance on road transport. However, there is no suggestion that a maximum journey time should be imposed.

The IATA regulations cover requirements for shipping and carriage procedures for air transit and give details of approved containers for different types of animals. Specific guidelines are given for the preparation of primates for despatch, for their feeding and watering requirements and for their general loading and care, along with examples of minimum container dimensions, divided into four categories based on the approximate size of species to be carried (**Table 4.4**). However, these dimensions are illustrative only and the onus is on the transporter to relate the container dimensions to the actual size of the primates to be transported. For some primate species and age groups, multiple individuals may be transported in each compartment of a transport container. That said, the regulations state that dimensions must 'in general allow the animal to stand, turn and lie down in a natural manner' (IATA, 2000).

Table 4.4 Categories of container requirements (CR) for primates under IATA live animals regulations.

Container requirement	Category of primate
CR31	Primates of the size and weight of an adult vervet/African green monkey or smaller
CR32	Rhesus or other monkeys for laboratory use
CR33	Young/sub-adult baboons and great apes
CR34	Adult baboons and great apes

The RSPCA is concerned that, in placing the onus on the transporter to interpret the recommended container dimensions, the IATA regulations allow primates to be transported in containers that are too small to safeguard their welfare, especially for the long journeys currently endured. For example, the container requirements for 'rhesus or other monkeys for laboratory use' state that young primates may be shipped in groups in five- or two-compartment containers with two animals per compartment. Animals weighing over two kilograms must be transported one per compartment. The dimensions given for each compartment of the five-compartment container are 51 (height) x 44 (depth) x 24 cm (width), and for each compartment of the two-compartment container they are 72 (height) x 50 (depth) x 30 cm (width). Elsewhere in the regulations, adult macaques are described as being from 48 to 61 cm in length. This suggests that monkeys for laboratory use can be transported in compartments barely larger than the monkeys themselves. This, combined with inadequate ventilation, probably led to the deaths of three long-tailed macaques in 1998 (Hansard reports of Parliamentary Questions, 28 June, 2000).

Primates destined for use in research and testing are also controlled under the ASPA (**see Section 4.8**). In addition, Section 1 of the Protection of Animals Act 1911 (1912 in Scotland) makes it an offence to cause 'unnecessary suffering' to any domestic or captive animal.

Concern 16

In placing the onus on the transporter to relate the container dimensions to the actual size of primates to be transported, the IATA live animals regulations allow primates to be transported in containers that are too small to safeguard their welfare, especially for the long journeys currently endured.

Recommendation 16

The container dimensions specified in the IATA live animals regulations should be increased consistent with the size of the animal, and checks made, to ensure that all transported primates can stand, turn, and lie down in a natural manner.

The IATA live animals regulations should specify a maximum journey time for primates.

4.8 Controls on the use of imported primates under the ASPA

The ASPA places restrictions on the acquisition and use of primates in regulated procedures. Under the ASPA, a project licence authorizing the use of primates will only be issued if animals of no other species (including humans where appropriate) are suitable for the programme of research

involved, or if it is not practicable to obtain other suitable animals. Procedures to be carried out on primates must be described in separate protocol sheets, and not grouped with other species on the project licence. Since 1987, all project licence applications involving primates which are classified as being of substantial severity must be referred prospectively to APC. In 1992, the APC set up a working group to consider various aspects of the use of primates in more detail and requested notification from the HO of all licences issued for primate use (see the APC Report for 1992: Home Office, 1993).

Primates are included in Schedule 2 of the ASPA and must therefore be acquired only from an accredited (designated) breeding or supply establishment. Waivers under section 10(3) of the Act to allow for the use of purpose-bred primates from non-designated sources are conditional upon lifetime records being supplied. All sources must be agreed by the HO before the animals are obtained and any procedure commences. Designated establishments must meet the terms and conditions of the certificate of designation and, unless otherwise authorized, are expected to comply with the requirements of the HO *Code of Practice for the Housing and Care of Animals in Designated Breeding and Supplying Establishments* (Home Office, 1995a). Responsibility for abiding by the laws rests primarily with the individuals concerned, although HO inspectors do visit designated (and infrequently, non-designated) sources, sometimes unannounced, to monitor compliance with all the relevant controls including those relating to the acquisition and care of animals.

Transport arrangements for primates acquired from overseas are monitored by the HO by way of a brief form, and health checks are required on and after arrival at the UK destination. Within the UK, when primates are to be transferred between designated establishments the HO inspectors for both establishments must be informed, and their permission obtained before the move takes place (LABA/LASA, 1993). The HO oversees the treatment of the animals from the time they arrive at the designated establishment.

MAFF issued a guidance document (PB 3766) relevant to the transport of animals protected under the ASPA. Designated establishments are required to keep and make available to the HO on request records of the source, use (where appropriate) and disposal of animals. In addition, since 1996, after each delivery of primates from an overseas source, the HO must receive:

- confirmation that the animals were shipped to the agreed plan and arrived safely
- a report of the veterinary inspection that must be carried out on arrival
- within six weeks, details of any morbidity and mortality arising during the first four weeks following arrival in the UK
- lifetime records of standards of breeding, housing and husbandry conditions for each animal.

4.8.1 Assessing costs relating to primate use under the ASPA

The cost-benefit assessment under Section 5.4 of the ASPA requires that the likely adverse effects (pain, suffering, distress or lasting harm) of procedures involved in a programme of work be weighed against the benefit likely to accrue as a result. In order to determine cost, the overall severity of the proposed project is assessed. This reflects the cumulative effects of all the procedures involved, the number of animals to be used, the frequency of use, the proportion of animals that will be subjected to the maximum severity of each procedure and the duration of exposure to this severity (Home Office, 2000c).

In 1996, as a direct consequence of recommendations made in the previous RSPCA report, the HO announced that the adverse effects associated with acquisition and transport of primates would be included in the cost-benefit assessment of proposed programmes of research under the ASPA (Home Office, 1995b, 2000c). However, it is not clear exactly what factors are taken into account or how these are weighted in the cost-benefit assessment. Furthermore, project licence applicants may be unaware of the complete (lifetime) experience of the animals concerned or the stresses that acquisition and transport impose upon them, and it may be that the source of animals is undecided before a project licence is granted.

The use of primates in research and testing is highly controversial and the suffering involved is a source of concern to many groups in the UK, including primatologists, animal welfare organizations, and the general public. If primate suffering is to be reduced (and the ASPA requires that suffering be minimized), it is essential that all those involved with primate use are fully aware of the stresses imposed on the animals. It is incumbent upon those who create the demand for primate experiments, those who fund them, those who assess the justification for them at a national and international level, and those who actually conduct them to give due consideration to, all the costs involved, including those arising from acquisition and transport. They must then work to ensure the highest standards of welfare for these primates at all stages of their acquisition and transport.

Although the HO does not have jurisdiction over overseas breeding and supply centres, it is responsible for approving these centres as sources of primates to be used in the UK under the ASPA. The RSPCA believes that, as the administering body of the ASPA, the HO has a responsibility to encourage ethical review processes and users of primates to use the source causing the least suffering.

Concern 17

A full and proper assessment of the costs to primates of a proposed programme of research under the ASPA requires that project licence applicants, local ethical review processes, and the HO inspectorate take into account the costs that are due to acquisition and transport. Yet they cannot do so if they are unaware of the complete (lifetime) experience of the primates concerned and the stress that acquisition and transport impose upon them. What is more, it is not clear how costs due to acquisition and transport are weighted in the cost-benefit assessments of the local ethical review process and HO inspectorate.

Recommendation 17

The HO has a responsibility to clarify and provide more information on how the costs to primates of acquisition and transport are weighted in the cost-benefit assessment. Primate users and local ethical review processes should also clarify how these costs are taken into account in their deliberations over the justification for primate use. This matter must also be considered by those who create the demand for primate use, including regulatory and funding bodies and the pharmaceutical industry.

Consideration of research proposals by local ethical review processes and the HO inspectorate should include appropriate experts in the care and use of primates. These experts can act as the animals' advocates and ensure that all possible measures are taken to avoid the use of primates, to limit the number of primates used to a minimum, and to minimize the impact of the research on the animals, including acquisition and transport costs (the 3Rs). They can also advise on whether facilities for housing, husbandry and care of the animals meet the animals' needs and encourage the highest standards of welfare.

4.8.2 Special provisions for vulnerable primates

In 1996, the HO announced special provisions to protect the species of primate considered most vulnerable. These provisions included a ban on the importation of wild-caught primates for use under the ASPA, unless the project licence applicant can establish exceptional and specific justification for their use. All such applications are referred to the APC for advice before approval can be granted. Since the UK ban was implemented, special exception has been made for the use of wild-caught olive baboons in xenotransplantation research.

A ban on the use of great apes (common chimpanzee, bonobo, gorilla and orang-utan) in scientific procedures was announced in 1997. This decision was presumably made on the grounds that, because of their complex mental abilities,

great apes are likely to have an enhanced capacity for suffering, and because of their conservation status (CITES Appendix I). However, it is still possible to use other endangered (CITES Appendix I) primate species in experiments in the UK. In accordance with CITES regulations, they may only be used on projects aimed at their preservation or for 'essential' biomedical purposes where the species in question proves to be the only one suitable for the purpose.

Since 1996, the HO has required that the use of Old World as opposed to New World primates must be specifically justified. In practice, this means that special justification is required for the use of macaques rather than marmosets. It is not clear why this distinction was made, but it is not a helpful one, as the welfare impact upon these two family groups is not always straightforward. It is not always the case, for instance, that use of marmosets involves less cost to the animals than use of macaques (Boyd Group, in press). Moreover, due to heterogeneity in these family groups, the distinction breaks down when species other than those commonly used are considered. For example, New World capuchin monkeys show considerable cognitive skills that could be superior to those of Old World monkeys.

Compared to macaques, marmosets are more easily bred in the country of use, meaning their sources are easier to regulate and there is less transport stress in the journey to the user. It is considered easier to comply with the welfare, husbandry and management requirements of marmosets and to enrich their environment, and it is easier to obtain sexually mature marmosets than sexually mature macaques (Smith et al., 2001). However, marmosets are more difficult to train to accept handling by humans and do not easily tolerate disruption to, or removal from, their family groups. They also appear to find some routine scientific procedures more stressful than macaques (Boyd Group, in press).

Concern 18

Although there is a ban on the use of great apes, which are listed in CITES Appendix I, it remains possible to use other endangered (CITES Appendix I) primate species in biomedical research and testing in the UK.

Recommendation 18

The HO should extend the special provisions concerning use of the most vulnerable primates in scientific procedures, and impose a complete ban on the use of all CITES Appendix I primate species.

Concern 19

The HO requirement that the use of Old World as opposed to New World primates must be specially justified is not helpful because the welfare impact upon these groups is not always straightforward. That is, it is not always the case that use of marmosets involves less cost to the animals than use of macaques). Moreover, this simplistic distinction breaks down when species other than those commonly used are considered.

Recommendation 19

Justification for the use of New World or Old World monkeys should be considered by the HO, primate users and local ethical processes on a case by case basis. This consideration should take into account the adverse effects on welfare of acquisition and transport, housing and husbandry, handling and restraint, and routine procedures.

not identified individually. Therefore, it is not possible to determine whether endangered species are included in the lists of family groups, how many tamarins as opposed to marmosets are used, or the extent to which each of the different macaque species are used. The long-tailed macaque (*Macaca fascicularis*) is a different species from the rhesus macaque (*Macaca mulatta*), just as the lion (*Panthera leo*) is a different species from the tiger (*Panthera tigris*).

The fact that a number of different primate species (as opposed to the monospecific mouse, rat or dog) are used in research and testing should not be ignored. Different macaque species, for instance, show behavioural, ecological and possible temperamental differences, and their responses to the laboratory environment might therefore be quite different. For example, long-tailed, rhesus and bonnet macaques (*Macaca radiata*) show distinct and consistent differences in behavioural and adrenocortical responses to stress induced by brief confinement in a transport cage (Clarke et al., 1988) and to cage and room change (Crockett et al., 2000). There are also differences in the mating behaviour, aggressiveness, and ease of breeding of these related species. The RSPCA is pleased to note that species-specific requirements are now beginning to be considered in discussions of the European legislation governing animal use.

No details are provided in the annual statistics on the origin of the primates, although some information is published on the supply of primates from designated and non-designated sources (in Table 2). This information for 1995 to 2000 is summarized below (Table 4.5). However, it is not possible to tell how many primates used in any one year were originally imported and how many were born in the UK. This is because the figure for procedures on primates obtained from UK breeding and supplying establishments includes those that were imported to UK suppliers. Imported primates may therefore be recorded as coming from UK supply establishments even though they would have undergone a long, stressful journey from their country of origin. This is no longer an issue, however, since the last primate supply establishment in the UK closed in 2000. The figure for 'sources outside the EU' is for primates imported directly from overseas breeders to

4.8.3 Availability of information on primate use

In 1996, the then HO minister Mike O'Brien stated that the HO would keep under review the availability of information about primate use, and would ensure that as much information as possible was made available within the restraints of the legislation and need for commercial confidentiality.

Since 1996, the tables presented in the HO annual statistics have listed primates under two main headings: Prosimians and New World monkeys, and Old World monkeys. Further subdivisions into nine separate groups (generally taxonomic families) are provided in the breakdown of procedures and animals by primary purpose in Tables 1 and 1a, by field of research (non-toxicology) in Tables 5 and 5a, and by toxicological purpose (toxicology) in Tables 10 and 10a of the annual statistics. However, these subdivisions do not appear elsewhere in the statistics. Furthermore, the family groups may comprise several related species and these are

Table 4.5 Scientific procedures for primates by source of animal (1995-2000).

Source	1995	1996	1997	1998	1999	2000	Total
Own designated establishment	1,563	1,135	1,586	846	1,193	1,093	7,416
Another designated establishment in the UK	2,002	2,498	1,961	2,414	2,392	1,244	12,511
Non-designated source in the UK	0	0	0	0	0	0	0
Source within the EU (outside the UK)	11	0	40	0	0	12	63
Outside EU/Council of Europe country signed to ETS 123	1,145	741	321	395	0	9	2,611
Other sources	0	0	0	418	1,332	1,750	
Not listed in schedule 2	0	0	0	0	0	0	0
Total	4,721	4,374	3,908	3,655	4,003	3,690	24,351

the UK establishments where they will be used, without passing through a supply establishment first. It is not possible to tell from these figures if the animals were wild-caught. Furthermore, figures are given for the number of procedures on primates from different sources, not for individual animals, and primates are not broken down into species in this table.

Primates imported for scientific or biomedical research purposes go to establishments designated under the ASPA. The establishments that use primates are licensed by and known to the HO, but details of these are not published.

It is not possible to correlate the primates coming into the UK (Table 1 of the HO annual statistics) with those used in research and testing each year (Table 3), because they may not have been used in the same year that they were imported into the UK. It is unlikely that this is always the case. It is also not possible to correlate the HO figures on sources of primates and numbers used (Tables 2 and 3), as the primates used are not broken down into species.

The HO statistics do break the number of procedures on primates down into broad categories of purpose, such as anatomy, physiology, psychology, immunology, pharmaceutical research and development and safety testing. However, this does not reveal much about what the animals actually experienced, how much suffering was caused or why the research was done (and considered to be justified). The APC annual reports provide some more information on primate use and published scientific literature describes experiments on primates retrospectively. These sources taken together give a broad overview of primate use but they cannot be correlated with primate imports. For example, a paper describing a study using primates may be published several years after the experiments initially began.

Concern 20

The current level of detail on the use of primates under the ASPA given in the HO annual statistics does not allow interested parties to gain a full understanding of primate use in the UK, or to readily identify areas of concern. For example, details of the species of primates used are not given. The information provided is limited to a breakdown into family groups in the tables showing primary purpose, field of research (non-toxicology), and toxicological purpose. There are no details of what the primates actually experience. Furthermore, there is no detail on the origin of primates and little information on the source. Figures are given for the number of procedures on primates from different sources and not the number of animals used.

Recommendation 20

For better ongoing assessment of primate use, the HO annual statistics should be expanded to contain more detailed information on the use of primates in scientific procedures. Specifically, the annual statistics should give:

- separate information for each species of primate used
- details of the origin and source of primates, and list separately all primates that have been bred overseas and then imported into the UK, even if they pass through UK supply establishments
- Figures for the number of primates as well as the number of procedures from different sources
- Details of the number of primates used in projects in each of the severity bands, broken down by field of research so as to identify particular fields of concern
- a list of the titles of primate projects approved.

5 Conclusions

The use of primates in scientific research and testing is a source of grave concern for the RSPCA and this concern is echoed by the general public (Aldhous et al., 1999; MORI, 1999). The Society affords special concern to primates, because of their high level of development and their behavioural and social complexity. These factors in themselves make the use of primates in research and testing ethically questionable. In addition, there can be serious distress involved in the way in which primates are housed, cared for, acquired and transported.

This report specifically highlights the concerns the RSPCA has about the acquisition and transport of primates from countries outside of the UK. Of the recommendations made in this report, four important general points emerge.

- Acquisition of primates from the wild for overseas captive breeding centres, methods of capture, conservation status, and standards of housing, husbandry and care at these centres need to be urgently re-evaluated and significant welfare improvements made immediately **(see Recommendations 1, 2, 3, 4, 5, 6 and 7)**.
- Immediate improvements in current practice and improvements in relevant legislation, regulations and enforcement are required to better safeguard primate welfare during transport **(see Recommendations 8, 13, 14, 15 and 16)**.
- There should be greater and more effective liaison and co-operation between the government departments responsible for collecting, recording and monitoring primate trade data. This is necessary to assess and record more accurately the number of primates entering and leaving the UK and to make sure that importers possess adequate accommodation facilities for these animals before import permits are granted. Ideally, it should be possible to 'track' every single primate imported into the UK from birth to arrival at its final destination. The new DEFRA provides a unique opportunity to do so **(see Recommendations 9, 10, 11 and 12)**.
- There is a desperate need for more information on many aspects of primate trade and use to be made available to:
 - i) those who assess the justification for primate use (primate users, local ethical review processes and the HO inspectorate) so that they can perform proper cost-benefit assessments and ensure that suffering is minimized,
 - ii) those who create the demand for primate use (regulatory and funding bodies and the

pharmaceutical industry) so that they understand the impact their demands have on individual primates and primate populations.

There should also be greater openness with animal welfare organizations and the general public who have deep concerns about primate use **(see Recommendations 2, 6, 7, 12, 17 and 20)**.

As long as primates continue to be used in research and testing, they should be obtained from the source that causes the minimum suffering with respect to acquisition and transport. The optimum situation with respect to the welfare of the primates involved is for them to be captive-bred as close as possible to their place of use in conditions consistent with their physical, psychological and behavioural needs.

Finally, it is important to stress that the RSPCA's long-term goal is to see an end to primate experiments and their replacement with humane alternatives. The Society believes that the necessity and justification for primate use should be more critically examined at a national and an international level.



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