Statistics of animal use in research and teaching, Victoria

1 January 2017 – 31 December 2017

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# Introduction

Animal Welfare Victoria under the Department of Jobs, Precincts and Regions (DPJR), regulates and monitors the use of animals for research, teaching, and testing in Victoria. It safeguards the well-being of animals by granting licences only to individuals or institutions that meet DPJR’s licensing requirements; conducting audits to ensure that requirements under the *Australian code for the care and use of animals for scientific purposes, 8th ed. 2013* are being met; providing advice on best practice in animal use in research, teaching and testing for scientific procedures; and providing training programs to stakeholders.

Each year, all individuals and organisations licensed under the *Prevention of Cruelty to Animals Act 1986* are required to submit data on their use of animals for scientific procedures and breeding in compliance with Regulation 100 of the Prevention of Cruelty to Animals Regulations 2008. This reporting requirement is one of the several techniques in place that enables Animal Welfare Victoria to monitor animal welfare.

This report presents information on animal use of all licence holders in 2017. Part 1 presents animal use statistics in 2017, including the purpose, source, and deaths. Part 2 presents yearly statistics of animal use from 2007 to 2017.

This report informs the DPJR’s policy development and compliance programs and is a useful tool in informing the community about the nature and purpose of animal use in Victoria.

Further information on the data collected for this report may be found in the 2017 return guidelines, available at [www.agriculture.vic.gov.au/ART.](https://vicgov.sharepoint.com/:f:/r/sites/VG000405/D007/POCTA%20SP/Auditing/2019%20Audits/6%20Australian%20Synchrotron/Submitted%20documents?csf=1&e=tVwHqO)

# 

# PART 1 NUMBER OF ANIMALS REPORTED AS USED IN 2017

# 1.1 Number of Animals Reported as Used, by Animal Type

In 2017, a total of **1,571,374** animals were reported to be used for teaching, research, and testing (scientific procedures). The table below shows the number of animals used by type. This shows a 45% increase from 2016’s animal use figure of **1,080,136**. This increase is attributed to the 125% increase in the number of fishes used (from 294,950 in 2016 to 666,089 in 2017) and the 954% increase in the number of amphibians used (from 3,713 in 2016 to 39,146 in 2017).

‘Specified animals’ are guinea pigs, rats, mice, and rabbits not bred in their native habitat; and non-human primates. Only licensed breeders can supply these species to research organisations for use in projects.

### Table 1.1 Number of Animals Reported as Used by Animal Type

| **Animal Type** | **Number of animals** |
| --- | --- |
| \*Guinea pig (lab) | 4,020 |
| \*Macaques | 104 |
| \*Marmosets | 122 |
| \*Mouse (lab) | 521,636 |
| \*Primates other | 1 |
| \*Rabbit (lab) | 1,680 |
| \*Rat (lab) | 20,859 |
| Amphibians | 39,146 |
| Bird exotic captive | 10 |
| Bird exotic wild | 747 |
| Bird native captive | 376 |
| Bird native wild | 57,536 |
| Bird other | 37 |
| Cats (non-wild) | 538 |
| Cats (wild) | 43 |
| Cattle | 27,362 |
| Cephalopods | 124 |
| Crustaceans | 16,065 |
| Dasyurids | 1,163 |
| Dogs (non-wild) | 4,469 |
| Dogs, foxes (wild) | 853 |
| Exotic feral mammal other | 625 |
| Exotic Zoo mammal | 34 |
| Ferret (lab) | 1,018 |
| Fish | 666,089 |
| Goats (domestic) | 1,629 |
| Hares (wild) | 31 |
| Horses (domestic) | 551 |
| Koalas | 824 |
| Laboratory mammal other | 2,636 |
| Lizards | 3,177 |
| Macropods | 2,817 |
| Mice (wild) | 1,358 |
| Monotremes | 69 |
| Native mammal other | 1,518 |
| Native Rats, Mice | 1,627 |
| Other domestic mammals | 2,149 |
| Pigs (domestic) | 4,699 |
| Possums, Gliders | 1,784 |
| Poultry | 90,488 |
| Rabbits (wild) | 1,015 |
| Rats (wild) | 341 |
| Reptile other | 4 |
| Seals, Sealions | 2,971 |
| Sheep (domestic) | 86,719 |
| Snakes | 63 |
| Tortoises/ turtle | 81 |
| Whales, Dolphins | 166 |
| **Total** | **1,571,374** |

*\*Specified animals.*

The 10 most used animals in 2017 are listed in Table 1.2 below.

### Table 1.2 Ten Most Used Animals in 2017

|  |  |
| --- | --- |
| **Row Labels** | **Number of animals** |
| Fish | 666,089 |
| \*Mouse (lab) | 521,636 |
| Poultry | 90,488 |
| Sheep (domestic) | 86,719 |
| Bird native wild | 57,536 |
| Amphibians | 39,146 |
| Cattle (domestic) | 27,360 |
| \*Rat (lab) | 20,859 |
| Crustaceans | 16,065 |
| Pigs (domestic) | 4,699 |

*\*Specified animals.*

The total reported number of specified animals in breeding colonies was **1,524,439.** The table below shows the number of specified animals in breeding colonies, excluding the offspring supplied to research or teaching projects (these are recorded in Table 1.1).

### Table 1.3 Number of Animals Reported in Breeding Colonies

|  |  |
| --- | --- |
| **Animal Type** | **Number of animals** |
| \*Guinea pig (lab) | 48 |
| \*Macaques | 476 |
| \*Marmosets | 744 |
| \*Mouse (lab) | 1,479,459 |
| \*Rabbit (lab) | 86 |
| \*Rat (lab) | 43,626 |
| **Total** | **1,524,439** |

*\*Specified animals.*

# 1.2 Number of Animals Used, by Animal Type and Project Purpose

Of the total **1,571,374** animals used for scientific purposes, **679,260** were usedfor understanding human / animal biology; **477,224** were used for pursuing environmental objectives; **225,688** for maintenance / improvement of human / animal health / welfare; **110,932** for achieving educational objectives; and **78,270** for improving animal management / production. The animals used for each purpose is presented in the table below.

### Table 1.4 Number of Animals Used by Animal Type and Project Purpose

| **Animal Type** | **Educational objectives** | **Environmental objectives** | **Improve animal  management/production** | **Maintenance/improvement human/animal health/welfare** | **Understand human/animal biology** | **Total** |
| --- | --- | --- | --- | --- | --- | --- |
| \*Guinea pig (lab) | 141 |  |  | 3,635 | 244 | 4,020 |
| \*Macaques |  |  |  | 44 | 60 | 104 |
| \*Marmosets |  |  |  | 1 | 121 | 122 |
| \*Mouse (lab) | 10,376 | 30 | 5,615 | 125,123 | 380,492 | 521,636 |
| \*Primates other |  |  |  | 1 |  | 1 |
| \*Rabbit (lab) | 57 |  | 14 | 1,203 | 406 | 1,680 |
| \*Rat (lab) | 1,345 | 32 | 170 | 7,930 | 11,382 | 20,859 |
| Amphibians | 1,408 | 12,975 | 818 | 66 | 23,879 | 39,146 |
| Bird exotic captive |  |  |  |  | 10 | 10 |
| Bird exotic wild |  | 747 |  |  |  | 747 |
| Bird native captive | 85 | 157 |  | 76 | 58 | 376 |
| Bird native wild | 10,068 | 38,304 |  | 228 | 8,936 | 57,536 |
| Bird other | 2 |  |  | 35 |  | 37 |
| Cats (non-wild) | 356 | 3 | 9 | 155 | 15 | 538 |
| Cats (wild) | 12 | 15 | 16 |  |  | 43 |
| Cattle | 3,542 | 110 | 17,856 | 5,692 | 162 | 27,362 |
| Cephalopods | 3 | 30 | 85 |  | 6 | 124 |
| Crustaceans | 185 | 2,400 | 13,463 |  | 17 | 16,065 |
| Dasyurids | 51 | 1,070 | 20 |  | 22 | 1,163 |
| Dogs (non-wild) | 1,587 | 2,062 | 141 | 456 | 223 | 4,469 |
| Dogs, foxes (wild) | 15 | 836 |  | 2 |  | 853 |
| Exotic feral mammal other | | 625 |  |  |  | 625 |
| Exotic Zoo mammal |  |  | 3 | 31 |  | 34 |
| Ferret (lab) | 8 |  |  | 1,010 |  | 1,018 |
| Fish | 4,233 | 404,708 | 9,606 | 3,888 | 243,654 | 666,089 |
| Goats (domestic) | 37 |  | 999 | 593 |  | 1,629 |
| Hares (wild) | 1 | 30 |  |  |  | 31 |
| Horses (domestic) | 217 |  | 23 | 230 | 81 | 551 |
| Koalas | 83 | 591 | 30 | 3 | 117 | 824 |
| Laboratory mammal other | |  |  | 460 | 2,176 | 2,636 |
| Lizards | 124 | 1,112 |  |  | 1,941 | 3,177 |
| Macropods | 115 | 2,346 |  | 16 | 340 | 2,817 |
| Mice (wild) | 151 | 934 |  | 273 |  | 1,358 |
| Monotremes | 5 | 63 |  |  | 1 | 69 |
| Native mammal other | 215 | 1,043 | 17 | 208 | 35 | 1,518 |
| Native Rats, Mice | 342 | 1,259 |  | 12 | 14 | 1,627 |
| Other domestic mammals | 128 | 1 | 2,000 | 20 |  | 2,149 |
| Pigs (domestic) | 189 |  | 3,648 | 675 | 187 | 4,699 |
| Possums, Gliders | 165 | 1,447 |  | 172 |  | 1,784 |
| Poultry | 25,262 | 252 | 5,716 | 55,733 | 3,525 | 90,488 |
| Rabbits (wild) | 22 | 673 | 320 |  |  | 1,015 |
| Rats (wild) | 214 | 127 |  |  |  | 341 |
| Reptile other | 4 |  |  |  |  | 4 |
| Seals, Sealions |  | 2,971 |  |  |  | 2,971 |
| Sheep (domestic) | 50,154 | 15 | 17,685 | 17,713 | 1,152 | 86,719 |
| Snakes |  | 59 |  | 2 | 2 | 63 |
| Tortoises/ turtle | 30 | 33 | 16 | 2 |  | 81 |
| Whales, Dolphins |  | 164 |  |  | 2 | 166 |
| **Total** | **110,932** | **477,224** | **78,270** | **225,688** | **679,260** | **1,571,374** |

*\*Specified animals.*

### Table 1.5 Number of Animals Used by Project Purpose

|  |  |
| --- | --- |
| **Project Purpose** | **Number of animals** |
| Understand human/animal biology | 679,260 |
| Environmental objectives | 477,224 |
| Maintenance/improvement human/animal health/welfare | 225,688 |
| Educational objectives | 110,932 |
| Improve animal management/production | 78,270 |
| **Total** | **1,571,374** |

Figure 1.1 Animals Used by Project Purpose

The 10 most used animals for each objective was chosen for analysis purposes. The most used animal for activities relating to the improvement of human and animal health and welfare and for understanding human and animal biology was the laboratory mouse. Fish and native wild bird were used most for activities relating to environmental purposes, while the domestic sheep was used most for educational purposes and for the improvement of animal management and production.

## 1.2.1 Animals Used to Understand Human / Animal Biology

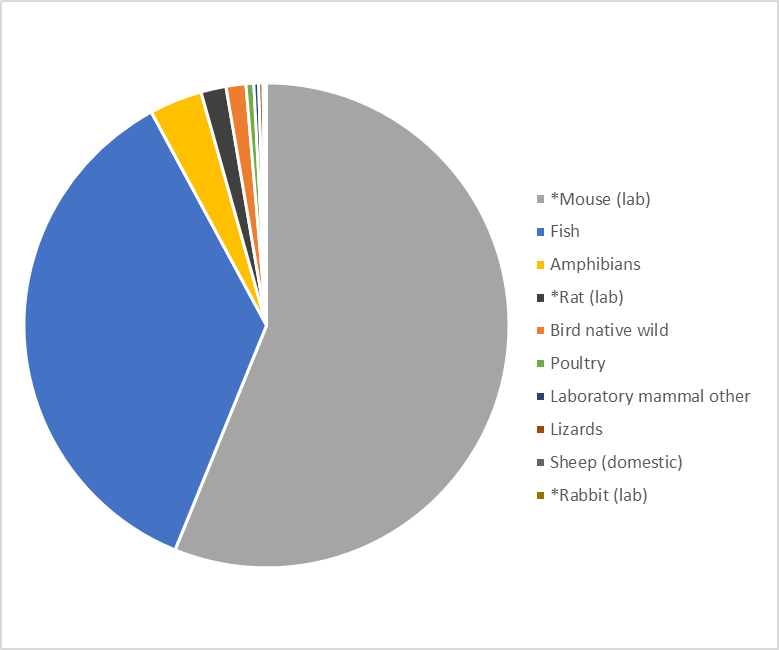
The 10 most used animals for activities relating to the understanding of human and animal biology are presented below.

### Table 1.6 Animals Used to Understand Human / Animal Biology

|  |  |
| --- | --- |
| **Animal Used** | **Number of animals** |
| \*Mouse (lab) | 380,492 |
| Fish | 243,654 |
| Amphibians | 23,879 |
| \*Rat (lab) | 11,382 |
| Bird native wild | 8,936 |
| Poultry | 3,525 |
| Laboratory mammal other | 2,176 |
| Lizards | 1,941 |
| Sheep (domestic) | 1,152 |
| \*Rabbit (lab) | 406 |
|  |  |

*\*Specified animals.*

Figure 1.2 Animals Used to Understand Human / Animal Biology



*\*Specified animals.*

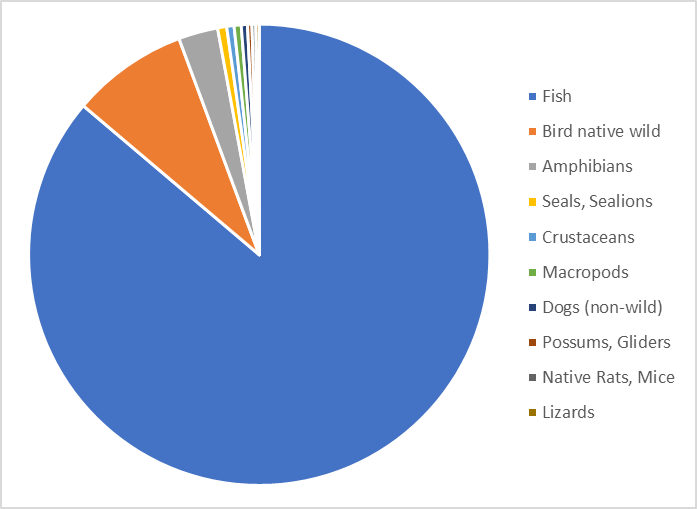
## 1.2.2 Animals Used to Achieve Environmental Purposes

The 10 most used animals for environmental purposes are presented below.

### Table 1.7 Animals Used to Achieve Environmental Purposes

|  |  |
| --- | --- |
| **Animal Type** | **Number of animals** |
| Fish | 404,708 |
| Bird native wild | 38,304 |
| Amphibians | 12,975 |
| Seals, Sealions | 2,971 |
| Crustaceans | 2,400 |
| Macropods | 2,346 |
| Dogs (non-wild) | 2,062 |
| Possums, Gliders | 1,447 |
| Native Rats, Mice | 1,259 |
| Lizards | 1,112 |
|  |  |

Figure 1.3 Animals Used to Achieve Environmental Purposes



## 1.2.3 Animals Used for Improvement of Human / Animal Health / Welfare

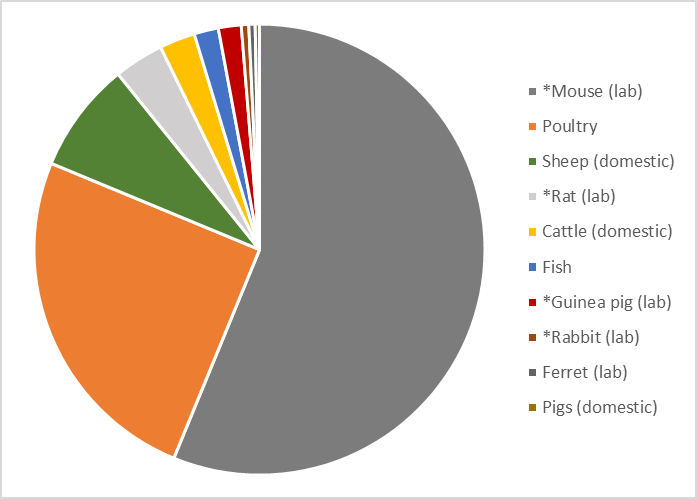
The 10 most used animals for activities relating to the improvement human and animal health and welfare are presented below.

### Table 1.8 Animals Used for Improvement of Human / Animal Health / Welfare

|  |  |
| --- | --- |
| **Animal Type** | **Number of animals** |
| \*Mouse (lab) | 125,123 |
| Poultry | 55,733 |
| Sheep (domestic) | 17,713 |
| \*Rat (lab) | 7,930 |
| Cattle (domestic) | 5,694 |
| Fish | 3,888 |
| \*Guinea pig (lab) | 3,635 |
| \*Rabbit (lab) | 1,203 |
| Ferret (lab) | 1,010 |
| Pigs (domestic) | 675 |
|  |  |

*\*Specified animals.*

Figure 1.4 Animals Used for Improvement of Human / Animal Health / Welfare



*\*Specified animals.*

## 1.2.4 Animals Used to Achieve Educational Purposes

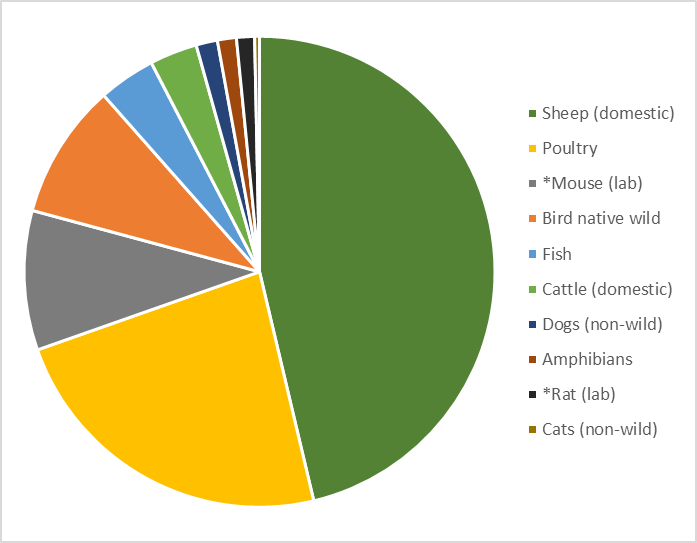
The 10 most used animals to achieve educational purposes are presented below.

### Table 1.9 Animals Used to Achieve Educational Purposes

|  |  |
| --- | --- |
| **Animal Type** | **Number of animals** |
| Sheep (domestic) | 50,154 |
| Poultry | 25,262 |
| \*Mouse (lab) | 10,376 |
| Bird native wild | 10,068 |
| Fish | 4,233 |
| Cattle (domestic) | 3,542 |
| Dogs (non-wild) | 1,587 |
| Amphibians | 1,408 |
| \*Rat (lab) | 1,345 |
| Cats (non-wild) | 356 |
|  |  |

*\*Specified animals.*

Figure 1.5 Animals Used to Achieve Educational Purposes

*\*Specified animals.*

## 1.2.5 Animals Used for Improvement of Animal Management / Production

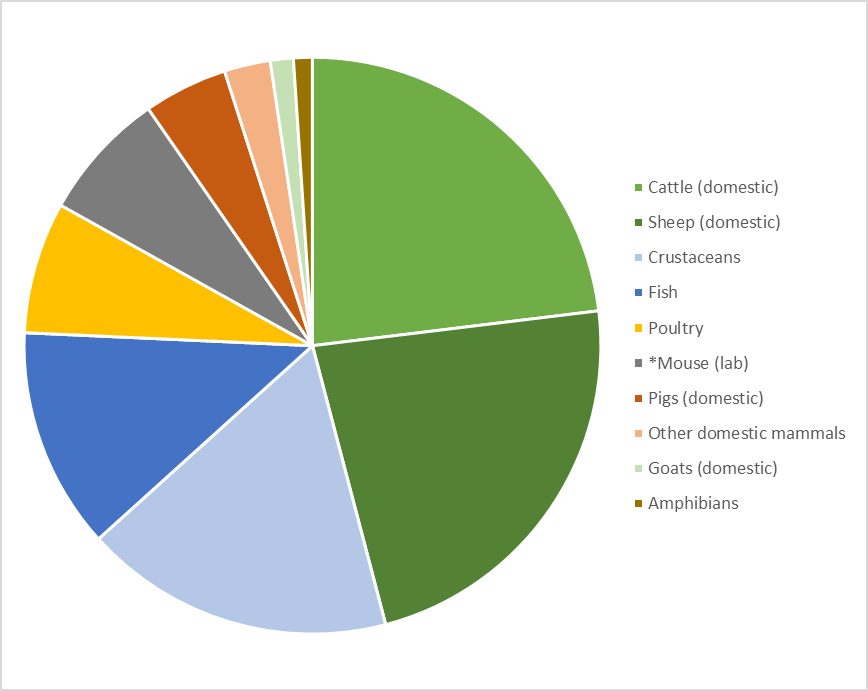
The top 10 animals used for activities for the improvement of animal management and production are presented below.

### Table 1.10 Animals for Improvement of Animal Management / Production

|  |  |
| --- | --- |
| **Row Labels** | **Number of animals** |
| Cattle (domestic) | 17,856 |
| Sheep (domestic) | 17,685 |
| Crustaceans | 13,463 |
| Fish | 9,606 |
| Poultry | 5,716 |
| \*Mouse (lab) | 5,615 |
| Pigs (domestic) | 3,648 |
| Other domestic mammals | 2,000 |
| Goats (domestic) | 999 |
| Amphibians | 818 |
|  |  |

*\*Specified animals.*

Figure 1.6 Animals Used for Improvement of Animal Management / Production

\**Specified animals.*

# 1.3 Number of Animals Used by Animal Type by Source

The animals used for scientific research, teaching and testing come from various sources. In 2017, around 43.1% of the animals used for scientific purposes came from the animals’ natural habitat; followed by specified animals bred by the licence holder for their own supply at around 34.7%; and privately-owned animals on farms at 8.1%.

### Table 1.11 Number of Animals Used by Animal Type by Source

| **Animal Type** | **\*Interstate Licenced Supplier** | **\*Overseas Supplier** | **\*Vic SABL Supplier** | **Animals in their natural habitat** | | **Australian captive colony/zoo** | | **Commercial supplier** | **Municipal pound** | **Other source** | **Own Derivation** | **Private donation** | **Privately owned animals on a farm** | **Removed from Aust. natural habitat** | | **Total** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| \*Guinea pig (lab) | 26 |  | 124 |  | |  | |  |  |  | 3,870 |  |  |  | | 4,020 | |
| \*Macaques |  |  | 40 |  | |  | |  |  |  | 64 |  |  |  | | 104 | |
| \*Marmosets |  |  | 109 |  | |  | |  |  |  | 13 |  |  |  | | 122 | |
| \*Mouse (lab) | 35,259 | 5,408 | 58,990 |  | |  | |  |  | 2,227 | 419,752 |  |  |  | | 521,636 | |
| \*Primates other |  |  |  |  | |  | |  |  | 1 |  |  |  |  | | 1 | |
| \*Rabbit (lab) | 394 | 99 | 394 |  | |  | |  |  |  | 793 |  |  |  | | 1,680 | |
| \*Rat (lab) | 6,817 |  | 6,210 |  | |  | |  |  | 269 | 7,563 |  |  |  | | 20,859 | |
| Amphibians |  |  |  | 35,842 | | 11 | | 513 |  |  | 829 |  |  | 1,951 | | 39,146 | |
| Bird exotic captive |  |  |  |  | |  | |  |  |  |  | 10 |  |  | | 10 | |
| Bird exotic wild |  |  |  | 747 | |  | |  |  |  |  |  |  |  | | 747 | |
| Bird native captive |  |  |  | 18 | | 191 | | 77 |  |  |  | 80 |  | 10 | | 376 | |
| Bird native wild |  |  |  | 57,422 | | 4 | |  |  |  |  |  |  | 110 | | 57,536 | |
| Bird other |  |  |  |  | |  | |  |  | 2 | 0 |  | 35 |  | | 37 | |
| Cats (non-wild) |  |  |  | 3 | |  | | 4 | 35 | 344 | 135 |  | 17 |  | | 538 | |
| Cats (wild) |  |  |  | 43 | |  | |  |  |  |  |  |  |  | | 43 | |
| Cattle |  |  |  |  | |  | |  |  |  |  | 2 |  |  | | 2 | |
| Cattle (domestic) |  |  |  |  | |  | | 606 |  | 92 | 11,970 | 5 | 14,687 |  | | 27,360 | |
| Cephalopods |  |  |  | 30 | |  | |  |  |  |  |  |  | 94 | | 124 | |
| Crustaceans |  |  |  | 2,316 | |  | | 4,341 |  |  |  |  |  | 9,408 | | 16,065 | |
| Dasyurids |  |  |  | 1,129 | | 28 | |  |  |  | 6 |  |  |  | | 1,163 | |
| Dogs (non-wild) |  |  |  | 2,046 | |  | |  | 2 | 1,097 | 813 | 146 | 365 |  | | 4,469 | |
| Dogs, foxes (wild) |  |  |  | 853 | |  | |  |  |  |  |  |  |  | | 853 | |
| Exotic feral mammal other |  |  |  | 625 | |  | |  |  |  |  |  |  |  | | 625 | |
| Exotic Zoo mammal |  |  |  |  | | 34 | |  |  |  |  |  |  |  | | 34 | |
| Ferret (lab) |  |  |  |  | |  | | 1,018 |  |  | 0 |  |  |  | | 1,018 | |
| Fish |  |  |  | 561,308 | | 4 | | 7,789 |  | 2,192 | 83,208 |  | 45 | 11,543 | | 666,089 | |
| Goats (domestic) |  |  |  |  | |  | | 32 |  | 5 |  |  | 1,592 |  | | 1,629 | |
| Hares (wild) |  |  |  | 31 | |  | |  |  |  |  |  |  |  | | 31 | |
| Horses (domestic) |  |  |  |  | |  | | 91 |  | 150 | 152 | 24 | 134 |  | | 551 | |
| Koalas |  |  |  | 815 | | 3 | |  |  |  |  |  |  | 6 | | 824 | |
| Laboratory mammal other |  |  |  |  | |  | |  |  |  | 2,636 |  |  |  | | 2,636 | |
| Lizards |  |  |  | 1,375 | |  | | 0 |  |  | 135 |  |  | 1,667 | | 3,177 | |
| Macropods |  |  |  | 2,326 | | 413 | |  |  |  | 78 |  |  |  | | 2,817 | |
| Mice (wild) |  |  |  | 1,358 | |  | |  |  |  |  |  |  |  | | 1,358 | |
| Monotremes |  |  |  | 69 | |  | |  |  |  |  |  |  |  | | 69 | |
| Native mammal other |  |  |  | 1,488 | | 24 | |  |  |  |  |  |  | 6 | | 1,518 | |
| Native Rats, Mice |  |  |  | 1,546 | | 12 | |  |  | 57 |  |  |  | 12 | | 1,627 | |
| Other domestic mammals |  |  |  |  | |  | |  |  | 132 | 17 |  | 2,000 |  | | 2,149 | |
| Pigs (domestic) |  |  |  |  | |  | | 1,157 |  | 200 | 172 |  | 3,170 |  | | 4,699 | |
| Possums, Gliders |  |  |  | 1,586 | | 2 | |  |  | 172 |  |  |  | 24 | | 1,784 | |
| Poultry |  |  |  |  | |  | | 56,314 |  | 33 | 7,100 |  | 27,041 |  | | 90,488 | |
| Rabbits (wild) |  |  |  | 628 | |  | |  |  | 368 |  |  | 19 |  | | 1,015 | |
| Rats (wild) |  |  |  | 341 | |  | |  |  |  |  |  |  |  | | 341 | |
| Reptile other |  |  |  | 4 | |  | |  |  |  | 0 |  |  |  | | 4 | |
| Seals, Sealions |  |  |  | 2,971 | |  | |  |  |  |  |  |  |  | | 2,971 | |
| Sheep (domestic) |  |  |  |  | |  | | 2,590 |  | 541 | 5,509 |  | 78,079 |  | | 86,719 | |
| Snakes |  |  |  | 61 | |  | | 0 |  |  |  |  |  | 2 | | 63 | |
| Tortoises/ turtle |  |  |  | 48 | | 2 | |  |  | 30 |  |  |  | 1 | | 81 | |
| Whales, Dolphins |  |  |  | 166 | |  | |  |  |  |  |  |  |  | | 166 | |
| **Grand Total** | **42,496** | **5,507** | **65,867** | | **677,195** | | **728** | **74,532** | **37** | **7912** | **544,815** | **267** | **127,184** | | **24,834** | | **1,571,374** | |

*\*Specified animals.*

### 

# 1.4 Number of Animals Used, by Animal Type by Procedure Type

The procedures conducted on animals depend on several factors such as the purpose of the project, the field of study or research, or new technologies developed. Before these procedures are conducted on animals, these procedures must be reviewed and approved by the nominated Animal Ethics Committee under strict parameters prescribed under the *Australian code for the care and use of animals for scientific purposes, 8th ed. 2013.*

### Table 1.12 Number of Animals Used by Animal Type by Procedure Type

| **Animal Type** | **Attachment/insertion of devices for long-term monitoring** | **Aversive stimuli for behavioural training or stress integral to experiment** | **Gene manipulative technology** | **Immunomodulatory methods** | **In vivo production of monoclonal antibody** | **In vivo production of polyclonal antibody** | **Induction of infection** | **Induction of neoplasia** | **Induction of other disease model e.g. diabetes, cardiac disease** | **Interference with the central nervous system or sensory capacity or controlling brain centres** | **Ionising radiation exposure** | **Neuromuscular blocking agents or electro-immobilisation** | | **Other procedure** | **Skin irritancy test of chemical, cosmetic or other preparation** | **Toxicity testing** | **Total** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| \*Guinea pig (lab) | 171 |  |  | 36 |  |  | 1,033 |  | 14 | 128 |  |  | | 2,484 |  | 154 | 4,020 |
| \*Macaques | 6 |  |  |  |  |  | 30 |  | 35 |  |  | 2 | | 31 |  |  | 104 |
| \*Marmosets | 5 |  |  |  |  |  |  |  |  | 92 |  | 13 | | 12 |  |  | 122 |
| \*Mouse (lab) | 795 | 2,310 | 34,241 | 28,750 | 709 | 1,098 | 80,315 | 71,955 | 57,938 | 4,484 | 17248 |  | | 220,706 | 65 | 1,022 | 521,636 |
| \*Primates other |  |  |  |  |  |  |  |  |  |  |  |  | | 1 |  |  | 1 |
| \*Rabbit (lab) |  |  | 39 | 684 | 24 | 378 |  |  | 28 |  |  |  | | 527 |  |  | 1,680 |
| \*Rat (lab) | 1,047 | 1,720 | 278 |  | 247 | 6 |  |  | 4,024 | 1,223 |  |  | | 11,876 | 20 | 418 | 20,859 |
| Amphibians |  |  |  |  |  |  |  |  |  |  |  |  | | 39,146 |  |  | 39,146 |
| Bird exotic captive | 10 |  |  |  |  |  |  |  |  |  |  |  | |  |  |  | 10 |
| Bird exotic wild |  |  |  |  |  |  |  |  |  |  |  |  | | 747 |  |  | 747 |
| Bird native captive | 119 | 79 |  | 32 |  |  |  |  |  |  |  |  | | 146 |  |  | 376 |
| Bird native wild | 3,189 |  |  |  |  |  |  |  |  |  |  |  | | 54,347 |  |  | 57,536 |
| Bird other |  |  |  |  |  |  |  |  |  |  |  |  | | 37 |  |  | 37 |
| Cats (non-wild) | 60 |  |  |  |  |  |  |  |  | 9 |  | 4 | | 465 |  |  | 538 |
| Cats (wild) |  |  |  |  |  |  |  |  |  |  |  |  | | 43 |  |  | 43 |
| Cattle (domestic) | 115 | 770 |  | 694 |  | 20 | 142 |  |  |  |  |  | | 25,621 |  |  | 27,362 |
| Cephalopods |  | 6 |  |  |  |  |  |  |  |  |  |  | | 118 |  |  | 124 |
| Crustaceans | 7,091 |  |  |  |  |  |  |  |  |  |  |  | | 8,974 |  |  | 16,065 |
| Dasyurids | 11 |  |  |  |  |  | 8 |  |  |  |  |  | | 1,144 |  |  | 1,163 |
| Dogs (non-wild) |  | 8 |  | 2 |  |  |  |  |  |  |  |  | | 4,457 |  | 2 | 4,469 |
| Dogs, foxes (wild) | 2 |  |  |  |  |  |  |  |  |  |  |  | | 851 |  |  | 853 |
| Exotic feral mammal other | |  |  |  |  |  |  |  |  |  |  |  | 625 | |  |  | 625 |
| Exotic Zoo mammal |  |  |  |  |  |  |  |  |  |  |  |  | | 34 |  |  | 34 |
| Ferret (lab) |  |  |  |  |  |  | 1,010 |  |  |  |  |  | | 8 |  |  | 1,018 |
| Fish | 9,529 | 26 | 63,810 |  |  |  | 922 | 242 | 298 |  |  |  | | 585,843 |  | 5,419 | 666,089 |
| Goats (domestic) |  |  |  |  |  |  |  |  |  |  |  |  | | 1,629 |  |  | 1,629 |
| Hares (wild) |  |  |  |  |  |  |  |  |  |  |  |  | | 31 |  |  | 31 |
| Horses (domestic) |  |  |  | 18 |  | 85 |  |  |  |  | 29 |  | | 413 |  | 6 | 551 |
| Koalas | 46 |  |  |  |  |  |  |  |  |  |  |  | | 778 |  |  | 824 |
| Laboratory mammal other | |  |  | 44 |  |  |  |  | 166 |  |  |  | 2,426 | |  |  | 2,636 |
| Lizards |  |  |  |  |  |  |  |  |  |  |  |  | | 3,177 |  |  | 3,177 |
| Macropods | 28 |  |  |  |  |  |  |  |  |  |  |  | | 2,789 |  |  | 2,817 |
| Mice (wild) | 135 |  |  |  |  |  |  |  |  |  |  |  | | 1,223 |  |  | 1,358 |
| Monotremes | 31 |  |  |  |  |  |  |  |  |  |  |  | | 38 |  |  | 69 |
| Native mammal other | 697 | 15 |  |  |  |  |  |  |  |  |  |  | | 806 |  |  | 1,518 |
| Native Rats, Mice | 145 |  |  |  |  |  |  |  |  |  |  |  | | 1,482 |  |  | 1,627 |
| Other domestic mammals | |  |  |  |  |  |  |  |  |  |  |  | 2,149 | |  |  | 2,149 |
| Pigs (domestic) | 15 | 64 | 120 | 94 |  | 6 | 801 |  |  |  | 28 |  | | 3,565 |  | 6 | 4,699 |
| Possums, Gliders | 201 |  |  |  |  |  |  |  |  |  |  |  | | 1,583 |  |  | 1,784 |
| Poultry |  |  | 3,448 | 837 |  | 3 | 54,821 |  |  |  |  |  | | 31,379 |  |  | 90,488 |
| Rabbits (wild) |  |  |  |  |  |  |  |  |  |  |  |  | | 1,015 |  |  | 1,015 |
| Rats (wild) |  |  |  |  |  |  |  |  |  |  |  |  | | 341 |  |  | 341 |
| Reptile other |  |  |  |  |  |  |  |  |  |  |  |  | | 4 |  |  | 4 |
| Seals, Sealions | 16 |  |  |  |  |  |  |  |  |  |  |  | | 2955 |  |  | 2971 |
| Sheep (domestic) | 2,055 |  | 18 |  | 10 |  | 102 |  | 237 | 42 | 14 |  | | 84121 |  | 120 | 86719 |
| Snakes |  |  |  |  |  |  |  |  |  |  |  |  | | 63 |  |  | 63 |
| Tortoises/ turtle | 1 |  |  |  |  |  |  |  |  |  |  |  | | 80 |  |  | 81 |
| Whales, Dolphins |  |  |  |  |  |  |  |  |  |  |  |  | | 166 |  |  | 166 |
| **Total** | **25,520** | **4,998** | **101,954** | **31191** | **990** | **1,596** | **139,184** | **72197** | **62,740** | **5,978** | **17,319** | **19** | | **1,100,456** | **85** | **7,147** | **1,571,374** |

*\*Specified animals.*

## 1.4.1 Number of Animals Used by Procedure and by Project Purpose

### Table 1.13 Number of Animals Used by Procedure and by Project Purpose

| **Procedure** | **Educational objectives** | **Environmental objectives** | **Improve animal management/**  **production** | **Maintenance/ improvement human/ animal health/welfare** | **Understand human/ animal biology** | **Total** |
| --- | --- | --- | --- | --- | --- | --- |
| Other procedure | 106,943 | 466,626 | 60,102 | 77,621 | 389,164 | 1,100,456 |
| Induction of infection | 4 | 922 | 4,913 | 77,106 | 56,239 | 139,184 |
| Gene manipulative technology |  |  | 1,330 | 15,236 | 85,388 | 101,954 |
| Induction of neoplasia |  |  |  | 24,016 | 48,181 | 72,197 |
| Induction of other disease model e.g. diabetes, cardiac disease | 80 |  |  | 16,395 | 46,265 | 62,740 |
| Immunomodulatory methods |  |  | 500 | 6,802 | 23,889 | 31,191 |
| Attachment/insertion of devices for long-term monitoring | 3,783 | 9,457 | 8,840 | 700 | 2,740 | 25,520 |
| Ionising radiation exposure | 42 |  |  | 2,066 | 15,211 | 17,319 |
| Toxicity testing |  | 131 | 1,800 | 1,334 | 3,882 | 7,147 |
| Interference with the central nervous system or sensory capacity or controlling brain centres | 54 |  |  | 1,570 | 4,354 | 5,978 |
| Aversive stimuli for behavioural training or stress integral to experiment | 26 | 43 | 785 | 2,074 | 2,070 | 4,998 |
| In vivo production of polyclonal antibody |  |  |  | 662 | 934 | 1,596 |
| In vivo production of monoclonal antibody |  |  |  | 66 | 924 | 990 |
| Skin irritancy test of chemical, cosmetic or other preparation |  | 45 |  | 40 |  | 85 |
| Neuromuscular blocking agents or electro-immobilisation |  |  |  |  | 19 | 19 |
| **Total** | **110,932** | **477,224** | **78,270** | **225,688** | **679,260** | **1,571,374** |

## 1.4.2 Number of Animals Used by Procedure Type and Procedure Impact

### Table 1.14 Number of Animals Used by Procedure Type and Impact

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Procedure Impact** | **Attachment/insertion of devices for long-term monitoring** | **Aversive stimuli for behavioural training or stress integral to experiment** | **Gene manipulative technology** | **Immunomodulatory methods** | **In vivo production of monoclonal antibody** | **In vivo production of polyclonal antibody** | **Induction of infection** | **Induction of neoplasia** | **Induction of other disease model e.g. diabetes, cardiac disease** | **Interference with the central nervous system or sensory capacity or controlling brain centres** | **Ionising radiation exposure** | **Neuromuscular blocking agents or electro-immobilisation** | **Other procedure** | **Skin irritancy test of chemical, cosmetic or other preparation** | **Toxicity testing** | **Total** |
| Minor conscious intervention | 16,534 | 1,459 | 11,029 | 8,040 | 149 | 179 | 1,764 | 5,430 | 8,015 | 1,178 | 209 |  | 595,506 |  | 90 | 649,582 |
| Observational study involving minor interference | 5,308 | 2,524 | 77,295 | 535 |  |  | 1,186 | 14,624 | 2,209 | 279 | 29 |  | 301,325 |  | 618 | 405,932 |
| Animal unconscious without recovery | 159 | 6 | 7,736 | 5,536 | 32 | 2 | 24,188 | 555 | 6,194 | 283 | 154 | 12 | 117,410 |  | 3,510 | 1657,77 |
| Minor physiological challenge | 99 | 243 | 653 | 7,842 | 119 | 724 | 72,358 | 7,914 | 8,839 |  | 2,173 |  | 42,926 | 85 | 2,495 | 146,470 |
| Moderate to major physiological  challenge | | 339 | 1,236 | 5,228 | 690 | 389 | 36,120 | 30,018 | 13,825 | 1,540 | 14,010 |  | 11,827 |  | 403 | 115,625 |
| Minor operative procedures with recovery | 1,090 | 65 | 2,055 | 3,871 |  | 296 | 1,139 | 6,168 | 6,149 | 350 | 648 |  | 21,657 |  | 10 | 43,498 |
| Surgery with recovery | 2,330 | 362 | 1,950 | 139 |  | 6 | 59 | 7,488 | 17,410 | 2,348 | 96 | 7 | 6,403 |  | 21 | 38,619 |
| Death as an endpoint |  |  |  |  |  |  | 2,370 |  | 99 |  |  |  | 3,402 |  |  | 5,871 |
| **Total** | **25,520** | **4,998** | **101,954** | **31,191** | **990** | **1,596** | **139,184** | **72,197** | **62,740** | **5,978** | **17,319** | **19** | **1,100,456** | **85** | **7,147** | **1,571,374** |

*In 2017, 41% of the animals used for scientific research, testing and teaching underwent minor conscious intervention and 26% were used for observational study involving minor interference. Nine percent of the total animals used underwent minor physiological challenge while 3% underwent minor operative procedures and 3% underwent surgery with recovery. Eleven percent of the animals underwent terminal procedures under anaesthesia.*

Figure 1.7 Percentage of Animals Used by Impact

## 1.4.3 Number of Animals Used by Procedure Type and Procedure Benefit

### Table 1.15 Number of Animals Used by Procedure Type and Procedure Benefit

| **Procedure** | **Development of techniques** | **Diseases- animal** | **Diseases- human** | **Diseases- zoonotic** | **Domestic animal management/ production** | **Education (demonstration)** | **Environmental monitoring/ecology** | **Fundamental biology/physiology** | **Production of biological products** | **Regulatory product testing** | **Training (student use of animals)** | **Vertebrate pest management** | **Wildlife management/ conservation** | **Xenotransplantation** | **Total** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Other procedure | 1,787 | 14,082 | 120,171 | 3,476 | 54,413 | 51,536 | 458,811 | 123,416 | 4,141 | 979 | 41,288 | 1,227 | 225,129 |  | 1,100,456 |
| Induction of infection | 426 | 9,527 | 68,260 | 1,999 |  | 4 |  | 32,273 | 19,092 | 6,681 |  | 922 |  |  | 139,184 |
| Gene manipulative technology | 413 | 1,009 | 21,036 | 185 |  |  |  | 78,910 | 401 |  |  |  |  |  | 101,954 |
| Induction of neoplasia | 509 | 100 | 60,303 |  |  |  |  | 10,650 |  |  |  |  |  | 635 | 72,197 |
| Induction of other disease model e.g. diabetes, cardiac disease | 260 | 308 | 56,717 |  |  |  |  | 5,373 | 82 |  |  |  |  |  | 62,740 |
| Immunomodulatory methods |  | 1,472 | 10,093 | 50 | 500 |  |  | 18,509 |  | 567 |  |  |  |  | 31,191 |
| Attachment/insertion of devices for long-term monitoring | 3,533 | 6 | 1,506 |  | 1,846 |  | 6,064 | 1,489 | 43 | 25 | 41 |  | 10,967 |  | 25,520 |
| Ionising radiation exposure |  | 18 | 3,957 |  | 29 | 42 |  | 13,273 |  |  |  |  |  |  | 17,319 |
| Toxicity testing |  | 600 | 896 |  |  |  | 119 | 5,482 | 10 | 40 |  |  |  |  | 7,147 |
| Interference with the central nervous system or sensory capacity or controlling brain centres | 31 |  | 3,378 |  |  | 54 |  | 2,515 |  |  |  |  |  |  | 5,978 |
| Aversive stimuli for behavioural training or stress integral to experiment |  |  | 2,230 |  | 834 |  | 8 | 1,832 |  |  |  |  | 94 |  | 4998 |
| In vivo production of polyclonal antibody |  | 226 | 587 | 12 |  |  |  | 456 | 315 |  |  |  |  |  | 1596 |
| In vivo production of monoclonal antibody |  |  | 66 |  |  |  |  | 268 | 656 |  |  |  |  |  | 990 |
| Skin irritancy test of chemical, cosmetic or other preparation |  |  | 40 |  |  |  |  |  |  | 45 |  |  |  |  | 85 |
| Neuromuscular blocking agents or electro-immobilisation |  |  |  |  |  |  |  | 19 |  |  |  |  |  |  | 19 |
| **Total** | **6,959** | **27,348** | **349,240** | **5,722** | **57,622** | **51,636** | **465,002** | **294,465** | **24,740** | **8,337** | **41,329** | **2,149** | **236,190** | **635** | **1,571,374** |

# 

# 1.5 Number of Animals Used, by Animal Type by Project Benefit

### Table 1.16 Number of Animals Used by Animal Type by Project Benefit

| **Animal Type** | **Development of techniques** | **Diseases- animal** | **Diseases- human** | **Diseases- zoonotic** | **Domestic animal management/production** | **Education (demonstration)** | **Environmental monitoring/ecology** | **Fundamental biology/physiology** | **Production of biological products** | **Regulatory product testing** | **Training (student use of animals)** | **Vertebrate pest management** | **Wildlife management/conservation** | **Xenotransplantation** | **Total** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Fish | 3,448 |  | 681 |  | 2,658 | 313 | 400,520 | 83,612 |  |  | 446 | 922 | 173,489 |  | 666,089 |
| \*Mouse (lab) | 1,657 | 7,542 | 303,577 | 2,147 | 4,339 | 796 | 433 | 192,838 | 729 | 58 | 6,885 |  |  | 635 | 521,636 |
| Poultry | 432 | 3,927 | 27,195 | 860 | 1,639 | 234 |  | 2,817 | 21,964 | 6,395 | 25,022 |  | 3 |  | 90,488 |
| Sheep (domestic) | 234 | 4,907 | 1,354 | 428 | 27,380 | 45,515 | 15 | 705 | 1,462 | 31 | 4,688 |  |  |  | 86,719 |
| Bird native wild | 700 |  |  | 1,033 |  | 164 | 26,791 | 1,862 |  |  | 282 |  | 26,704 |  | 57,536 |
| Amphibians | 9 |  | 16 |  |  | 350 | 32,650 | 242 |  |  | 295 | 20 | 5,564 |  | 39,146 |
| Cattle (domestic) |  | 4,045 |  | 837 | 18,069 | 2,609 | 110 | 20 |  | 839 | 831 |  |  |  | 27,360 |
| \*Rat (lab) | 34 | 19 | 12,470 |  |  | 332 | 6 | 6,856 | 237 | 32 | 873 |  |  |  | 20,859 |
| Crustaceans |  |  |  |  |  | 185 | 1,062 | 17 |  |  |  |  | 14,801 |  | 16,065 |
| Pigs (domestic) | 26 | 1,098 | 187 | 50 | 2,369 | 51 |  | 15 |  | 807 | 96 |  |  |  | 4,699 |
| Dogs (non-wild) | 244 | 494 | 9 | 100 | 78 | 366 | 14 | 32 | 2 | 67 | 994 |  | 2,069 |  | 4,469 |
| \*Guinea pig (lab) | 80 | 1,247 | 2,389 |  |  | 44 |  | 140 |  | 29 | 91 |  |  |  | 4,020 |
| Lizards |  |  |  |  |  | 26 | 578 | 1,941 |  |  | 27 |  | 605 |  | 3,177 |
| Seals, Sealions |  |  |  |  |  |  |  |  |  |  |  |  | 2,971 |  | 2,971 |
| Macropods | 2 | 14 |  |  |  |  | 364 | 80 |  |  | 38 |  | 2,319 |  | 2,817 |
| Laboratory mammal other |  |  | 124 |  |  |  |  | 2,512 |  |  |  |  |  |  | 2,636 |
| Other domestic mammals | 32 | 2,000 |  |  |  | 39 | 1 |  |  |  | 77 |  |  |  | 2,149 |
| Possums, Gliders |  |  |  | 172 |  | 61 | 235 |  |  |  | 44 |  | 1,272 |  | 1,784 |
| \*Rabbit (lab) |  | 686 | 161 | 12 |  |  |  | 402 | 312 | 64 | 43 |  |  |  | 1,680 |
| Goats (domestic) |  | 593 |  |  | 999 | 37 |  |  |  |  |  |  |  |  | 1,629 |
| Native Rats, Mice |  |  | 12 |  |  | 10 | 329 |  |  |  | 44 |  | 1,232 |  | 1,627 |
| Native mammal other |  | 201 |  | 6 |  |  | 404 | 1 |  |  |  |  | 906 |  | 1,518 |
| Mice (wild) |  | 273 |  |  |  |  | 54 |  |  |  | 22 | 450 | 559 |  | 1,358 |
| Dasyurids |  |  |  | 8 |  |  | 130 | 8 |  |  | 123 |  | 894 |  | 1,163 |
| Ferret (lab) | 8 | 12 | 920 | 69 |  |  |  |  | 9 |  |  |  |  |  | 1,018 |
| Rabbits (wild) |  |  |  |  |  | 19 | 1 |  |  |  |  | 688 | 307 |  | 1,015 |
| Dogs, foxes (wild) |  |  |  |  |  | 8 | 5 |  |  |  |  |  | 840 |  | 853 |
| Koalas |  |  |  |  |  |  | 418 | 98 |  |  | 2 |  | 306 |  | 824 |
| Bird exotic wild |  |  |  |  |  |  | 647 |  |  |  |  |  | 100 |  | 747 |
| Exotic feral mammal other |  |  |  |  |  |  | 111 |  |  |  |  | 14 | 500 |  | 625 |
| Horses (domestic) | 4 | 117 | 85 |  | 52 | 30 |  | 55 | 6 | 15 | 187 |  |  |  | 551 |
| Cats (non-wild) | 32 | 92 | 15 |  | 39 | 201 |  | 13 |  |  | 134 | 9 | 3 |  | 538 |
| Bird native captive | 5 | 32 |  |  |  |  |  | 17 |  |  | 80 |  | 242 |  | 376 |
| Rats (wild) |  |  |  |  |  | 213 | 10 |  |  |  |  |  | 118 |  | 341 |
| Whales, Dolphins |  |  |  |  |  |  | 2 |  |  |  |  |  | 164 |  | 166 |
| Cephalopods |  |  |  |  |  | 3 | 1 | 6 |  |  |  |  | 114 |  | 124 |
| \*Marmosets |  |  | 1 |  |  |  |  | 110 | 11 |  |  |  |  |  | 122 |
| \*Macaques |  |  | 44 |  |  |  |  | 54 | 6 |  |  |  |  |  | 104 |
| Tortoises/ turtle |  |  |  |  |  | 30 | 50 |  |  |  |  |  | 1 |  | 81 |
| Monotremes |  |  |  |  |  |  | 3 |  |  |  | 1 |  | 65 |  | 69 |
| Snakes |  |  |  |  |  |  | 53 | 2 | 2 |  |  |  | 6 |  | 63 |
| Cats (wild) |  |  |  |  |  |  | 1 |  |  |  |  | 16 | 26 |  | 43 |
| Bird other |  | 35 |  |  |  |  |  |  |  |  | 2 |  |  |  | 37 |
| Exotic Zoo mammal | 12 | 14 |  |  |  |  |  |  |  |  |  |  | 8 |  | 34 |
| Hares (wild) |  |  |  |  |  |  |  |  |  |  |  | 30 | 1 |  | 31 |
| Bird exotic captive |  |  |  |  |  |  |  | 10 |  |  |  |  |  |  | 10 |
| Reptile other |  |  |  |  |  |  | 4 |  |  |  |  |  |  |  | 4 |
| Cattle |  |  |  |  |  |  |  |  |  |  | 2 |  |  |  | 2 |
| \*Primates other |  |  |  |  |  |  |  |  |  |  |  |  | 1 |  | 1 |
| **Total** | **6,959** | **27,348** | **349,240** | **5,722** | **57,622** | **51,636** | **465,002** | **294,465** | **24,740** | **8,337** | **41,329** | **2,149** | **23,6190** | **635** | **1,571,374** |

*\*Specified animals.*

## 1.5.1 Number of Animals Used, by Project Impact by Project Benefit

### Table 1.17 Number of Animals Used, by Project Impact by Project Benefit

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Animal Type** | **Development of techniques** | **Diseases- animal** | **Diseases- human** | **Diseases- zoonotic** | **Domestic animal management/ production** | **Education (demonstration)** | **Environmental monitoring/ ecology** | **Fundamental biology/ physiology** | **Production of biological products** | **Regulatory product testing** | **Training (student use of animals)** | **Vertebrate pest management** | **Wildlife management/ conservation** | **Xenotransplantation** | **Total** |
| Minor conscious intervention, no anaesthesia | 794 | 7,439 | 69,153 | 3,345 | 28,143 | 283 | 276,141 | 65,377 | 2,615 | 1,037 | 5,965 | 218 | 189,072 |  | 649,582 |
| Observational study involving minor interference | 4,399 | 6,161 | 38,764 | 195 | 25,319 | 50,245 | 161,317 | 85,436 | 655 | 483 | 2,619 | 281 | 30,058 |  | 405,932 |
| Animal unconscious without recovery | 481 | 1,418 | 48,246 | 74 | 2,565 | 1,007 | 593 | 55,775 | 19,761 | 2,768 | 30,041 | 728 | 2,320 |  | 165,777 |
| Minor physiological challenge | 504 | 3,407 | 57,995 | 19 | 766 | 72 | 26,280 | 45,151 | 353 | 4,004 | 184 |  | 7,735 |  | 146,470 |
| Moderate to major physiological challenge | 5 | 6,356 | 77,216 | 1,917 | 64 |  |  | 28,078 | 1,049 | 18 |  | 922 |  |  | 115,625 |
| Minor operative procedures with recovery | 347 | 90 | 20,625 | 172 | 765 | 6 | 516 | 11,290 | 264 | 2 | 2,467 |  | 6,952 | 2 | 43,498 |
| Surgery with recovery | 429 | 107 | 33,740 |  |  | 23 | 155 | 3,358 | 43 | 25 | 53 |  | 53 | 633 | 38,619 |
| Death as an endpoint |  | 2,370 | 3,501 |  |  |  |  |  |  |  |  |  |  |  | 5,871 |
| **Total** | **6,959** | **27,348** | **349,240** | **5,722** | **57,622** | **51,636** | **465,002** | **294,465** | **24,740** | **8,337** | **41,329** | **2,149** | **236,190** | **635** | **1,571,374** |

# 1.6 Number of Animals Used and Animal Deaths

Investigators must make arrangements for animals at the conclusion of a project. If appropriate, animals may be returned to normal husbandry conditions or their natural habitat. When results rely on tissue analysis, this usually requires the humane killing of the animals. Opportunities to rehome animals that are not needed for tissue analysis should be considered wherever possible. Under certain conditions, with special justification, an AEC may approve an animal to be used in a subsequent project. In 2017, death was the reported fate for 89% of specified animals, reflecting their predominance in projects seeking to improve human or animal health or welfare. Of the non-specified animals, death was the reported fate for 19%.

### Table 1.18 Number of Animals Used and Deaths by Type

| **Animal Type** | **Number of animals in project** | **Number of deaths in project** | **% of Deaths** |
| --- | --- | --- | --- |
| Fish | 666,089 | 85,554 | 13% |
| Poultry | 90,488 | 87,387 | 97% |
| Sheep (domestic) | 86,719 | 6,377 | 7% |
| Bird native wild | 57,536 | 24 | <1% |
| Amphibians | 39,146 | 2,165 | 6% |
| Cattle | 27,362 | 287 | 1% |
| Crustaceans | 16,065 | 9,517 | 59% |
| Pigs (domestic) | 4,699 | 902 | 19% |
| Dogs (non-wild) | 4,469 | 10 | <1% |
| Lizards | 3,177 | 712 | 22% |
| Seals, Sealions | 2,971 | 3 | <1% |
| Macropods | 2,817 | 108 | 4% |
| Laboratory mammal other | 2,636 | 892 | 34% |
| Other domestic mammals | 2,149 | 2 | <1% |
| Possums, Gliders | 1,784 | 7 | <1% |
| Goats (domestic) | 1,629 | 240 | 15% |
| Native Rats, Mice | 1,627 | 19 | 1% |
| Native mammal other | 1,518 | 15 | 1% |
| Mice (wild) | 1,358 | 284 | 21% |
| Dasyurids | 1,163 | 11 | 1% |
| Ferret (lab) | 1,018 | 1,018 | 100% |
| Rabbits (wild) | 1,015 | 688 | 68% |
| Dogs, foxes (wild) | 853 | 6 | 1% |
| Koalas | 824 | 2 | <1% |
| Bird exotic wild | 747 | 0 | 0% |
| Exotic feral mammal other | 625 | 0 | 0% |
| Horses (domestic) | 551 | 7 | 1% |
| Cats (non-wild) | 538 | 28 | 5% |
| Bird native captive | 376 | 95 | 25% |
| Rats (wild) | 341 | 0 | 0% |
| Whales, Dolphins | 166 | 0 | 0% |
| Cephalopods | 124 | 120 | 97% |
| Tortoises/ turtle | 81 | 0 | 0% |
| Monotremes | 69 | 0 | 0% |
| Snakes | 63 | 2 | 3% |
| Cats (wild) | 43 | 0 | 0% |
| Bird other | 37 | 0 | 0% |
| Exotic Zoo mammal | 34 | 0 | 0% |
| Hares (wild) | 31 | 30 | 97% |
| Bird exotic captive | 10 | 10 | 100% |
| Reptile other | 4 | 0 | 0% |
| **Total** | **1,022,952** | **196,522** |  |

### Table 1.19 Number of Specified Animals Used and Deaths by Type

|  |  |  |  |
| --- | --- | --- | --- |
| **Animal Type** | **Number of animals in project** | **Number of deaths in project** | **% of Deaths** |
| \*Mouse (lab) | 521,636 | 465,811 | 89% |
| \*Rat (lab) | 20,859 | 18,973 | 91% |
| \*Guinea pig (lab) | 4,020 | 3,884 | 97% |
| \*Rabbit (lab) | 1,680 | 1,557 | 93% |
| \*Marmosets | 122 | 72 | 59% |
| \*Macaques | 104 | 21 | 20% |
| \*Primates other | 1 | 0 | 0% |
| **Total** | **548,422** | **490,318** |  |

*\*Specified animals.*

# PART 2 ANIMAL USE STATISTICS FROM 2007 TO 2017

# 2.1 Number of Animals Used, 2007–2017

The number of animals used in research, teaching and testing in 2017 was **1,571,374**. There was a 45% increase in the number of animals used in 2017, which was mainly due to the increase in the number of fishes and amphibians.

Figure 2.1 Number of Animals Used, 2007–2017

## 2.1.1 Animals Used in Scientific Procedures

Figure 2.2 Percentage of Animals Used by Project Purpose, 2012–2017

Figure 2.3 Percentage of Animals Used by Procedure Type, 2012–2017

# 2.2 Number of Specified Animals Used, 2007–2017

## 2.2.1. Number of Specified Mice Used, 2007–2017

A total of 521,636 specified (i.e., laboratory) mice were used in 2017. This shows a 31% increase from the 398,277 specified mice used in 2016. The long-term average of specified mice used from 2007–2017 is 466,379.

Figure 2.4 Number of Specified Mice Used, 2007–2017

## 2.2.2 Number of Specified Animals Excluding Mice and Non-human Primates, 2007 – 2017

A total of 26,527 specified (i.e., laboratory) rats, guinea pigs and rabbits were used in 2017. This comprised of 20,827 rats, 4,020 guinea pigs, and 1 680 rabbits.

Figure 2.5 Number of Specified Animals, Excluding Mice and Non-human Primates, 2007–2017

## 2.2.3 Number of Specified Primates, 2007 – 2017

A total of 226 non-human primates were used in 2017, comprised of 122 marmosets and 104 macaques.

Figure 2.6 Number of Non-human Primates, 2007-2017

# 2.3 Number of Animals Used in Genetic Modification Procedures and Number of Projects

A total of 194 projects used **101,954** animals in genetic modification in 2017. This figure includes animals used in specified breeding.

Figure 2.7 Number of Animals Used in Genetic Modification Procedures and Number of Projects, 2007–17

# 2.4 Number of Specified Animals in Breeding Colonies, by Animal Type, 2007–2017

### Table 2.1 Number of Non-Genetically Modified Specified Animals in Breeding Colonies

### by Animal Type, 2007–2017

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Type of animal | Year | | | | | | | | | |  |
| **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** |
| Guinea pigs | 3,638 | 1,142 | 1,087 | 1,153 | 388 | 320 | 244 | 345 | 294 | 96 | 48 |
| Macaques | 203 | 341 | 225 | 243 | 250 | 244 | 226 | 263 | 282 | 274 | 476 |
| Marmosets | 159 | 135 | 166 | 177 | 156 | 146 | 273 | 305 | 440 | 463 | 744 |
| Mice | 237,246 | 281,875 | 344,823 | 360,185 | 365,009 | 396,710 | 389,049 | 420,126 | 384,762 | 379,198 | 644,519 |
| Rabbits | 527 | 504 | 515 | 445 | 489 | 214 | 197 | 133 | 179 | 159 | 86 |
| Rats | 33,407 | 42,558 | 56,993 | 52,786 | 48,543 | 31,886 | 33,308 | 25,546 | 23,744 | 27,754 | 40,719 |
| Total | 275,180 | 326,555 | 403,809 | 414,989 | 414,835 | 429,520 | 423,297 | 446,718 | 409,701 | 407,944 | 691,592 |

### Table 2.2 Number of Genetically Modified Specified Animals in Breeding Colonies by Animal Type, 2007–2017

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Type of animal | Year | | | | | | | | | | |
| **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | 2017 |
| Mice | 389,632 | 461,745 | 490,962 | 531,098 | 558,293 | 578,240 | 584,660 | 568,495 | 582,925 | 683,769 | 829,940 |
| Rats | 13,120 | 9,304 | 1,923 | 1,146 | 1,744 | 1,381 | 1,992 | 4,271 | 2,714 | 2,286 | 2,907 |
| Total | 394,201 | 471,049 | 492,885 | 532,244 | 560,037 | 579,621 | 586,652 | 572,766 | 585,639 | 686,055 | 832,847 |

Figure 2.8 Number of Specified Mice in Breeding Colonies, 2007–2017

# 2.5 Number of Licences and Projects

# 

### Table 2.2 Number of Active Licences and Number of Projects, 2007–2017

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| Number of projects | 2,358 | 2,455 | 2,673 | 2,931 | 3,010 | 3,048 | 2,940 | 2,950 | 3,121 | 2,846 | 2,820 |
| Number of licences | 110 | 107 | 111 | 115 | 123 | 127 | 130 | 133 | 137 | 134 | 137 |