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STATUS OF ANIMAL GENETIC RESOURCES - 2016¹

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¹ Based on data reported by National Coordinators for the Management of Animal Genetic Resources to DAD-IS by February 2016.

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United Nations Cartographic Section, Department of Field Support.

<http://www.un.org/Depts/Cartographic/english/htmain.h>

I. INTRODUCTION

According to the request of the Twelfth Regular Session of the Commission on Genetic Resources for Food and Agriculture (Commission),² this report follows the structure set out in the document *Format and content of future status and trends reports on animal genetic resources*,³ taking into account the amendments requested by the Commission at its Fourteenth Regular Session.⁴ The analysis is based on FAO's Global Databank for Animal Genetic Resources, backbone of the Domestic Animal Diversity Information System (DAD-IS). It updates the data published in the report *Status and trends of animal genetic resources – 2014*.⁵

Prior to the analysis, all National Coordinators for the Management of Animal Genetic Resources (National Coordinators) were asked to update their national data as completely as possible by a set deadline and were reminded of the need to insert data related to the new “locally adapted” versus “exotic” breed classification set out in the document *Report of a consultation on the definition of breed categories*.⁶ This classification further provides National Coordinators the option of indicating whether a given locally adapted breed is “native” to the respective country.

The present report begins by describing the state of reporting on animal genetic resources and the progress made in this respect during the reporting period. A description of the current regional distribution of livestock species and breeds is then presented, followed by an overview of the risk status of the world's livestock breeds. Consistent with the request of the Commission, a cut-off point of ten years is applied for the calculation of risk status: Any breed for which no population data have been reported for ten years is now considered to be of unknown risk status. Calculations are based on the most up-to-date current and historical data available in DAD-IS as of 19 February 2016. The report presents an incomplete set of the resource indicators described in the document *Targets and indicators for animal genetic resources*⁷ and agreed upon by the Commission at its Fourteenth Regular Session. As part of the full implementation of its Revised Strategic Framework, FAO initiated in 2015 the centralization of major information management activities, including DAD-IS, in its Information Technology Division which, in the future, will therefore be fully responsible for the further development and maintenance of the DAD-IS infrastructure. Although this development aims to increase the long-term sustainability of DAD-IS and other information systems, it has caused in the short term delays in the implementation of the DAD-IS project. Therefore, in contrast to previous reports, no trends are presented in this document, as the ongoing DAD-IS development did not allow the export of the relevant data for these calculations. Furthermore, no indicators based on the new breed classification of “adaptedness” are presented, inasmuch as the amount of information available in DAD-IS by February 2016 was insufficient for such calculations. However, this report presents for the first time indicators that are directly linked to the Sustainable Development Goals of the United Nations, specifically to target 2.5 of Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture. The annexes to the report provide a detailed breakdown of the state of reporting, by country and by region.

II. STATE OF REPORTING

The Global Databank for Animal Genetic Resources currently contains data from 182 countries and for 38 species. The total number of national breed populations recorded in the Global Databank increased slightly during the reporting period (Table 1). The total number of mammalian national breed populations recorded in February was 11 116, as compared to 11 062 in June 2014. The total number of avian national breed populations recorded in 2016 was 3 799, as compared to 3 807 in 2014.

Since 2014, the percentage of avian national breed populations for which population data (including those for which no updates have been provided during the last ten years) are available has increased from 56 percent to 57 percent, while for mammals the proportion has increased from 60 percent to

² CGRFA-12/09/Report, paragraph 39.

³ CGRFA/WG-AnGR-5/09/3.2.

⁴ CGRFA-14/13/Report, paragraphs 28-32.

⁵ CGRFA-15/15/Inf.18 (<http://www.fao.org/3/a-mm278e.pdf>).

⁶ CGRFA/WG-AnGR-7/12/Inf.7 (<http://www.fao.org/docrep/meeting/026/me588e.pdf>).

⁷ CGRFA/WG-AnGR-7/12/7 (<http://www.fao.org/docrep/meeting/026/me514e.pdf>).

61 percent (Table 1). Twenty-nine countries updated their national data in 2014, 13 in 2015 and 21 in 2016 (as of 18 February). For 77 percent of national breed populations, no data on population size have been reported within the last five years (2012 to 2016). Figure 1 presents data on reporting activity according to region. The level of activity in updating data differs substantially among countries and regions.

National Coordinators were invited to classify their national breed populations into “locally adapted” or “exotic.”⁸ As of February 2016, 10 563 (71 percent) national breed populations remained unclassified by National Coordinators, compared to 12 504 (84 percent) in 2014. Although the proportion of classified breeds has increased nearly two-fold (from 16 percent to 29 percent), the proportion was still considered too small to justify further analysis of breed populations according to this classification. Therefore no indicator based on this classification system is presented here.

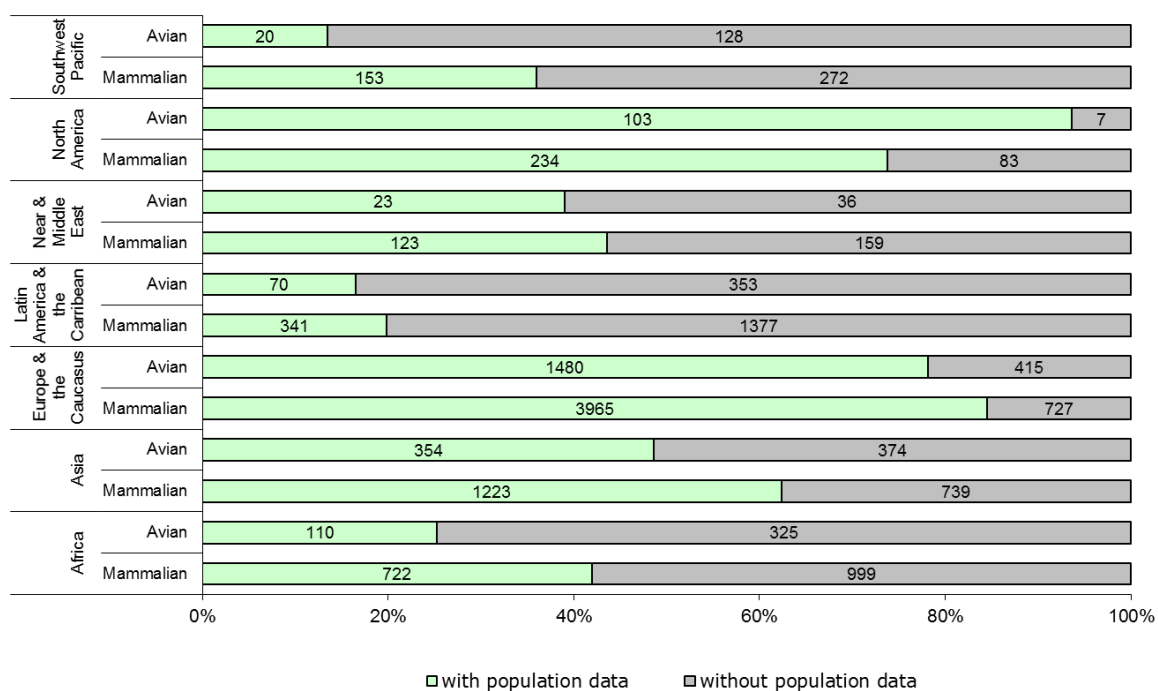
Table 1. Status of information recorded in the Global Databank for Animal Genetic Resources

Year of analysis	Mammalian species		Avian species		Countries covered
	Number of national breed populations	Proportion with population data (%)	Number of national breed populations	Proportion with population data (%)	
1993	2719	53	-	-	131
1995	3019	73	863	85	172
1999	5330	63	1049	77	172
2006	10512	43	3505	39	181
2008	10550	52	3450	47	181
2010	10507	54	3414	47	182
2012	10712	57	3482	48	182
2014	11062	60	3807	56	182
2016	11116	61	3799	57	182

No data recorded for Andorra, Brunei Darussalam, Liechtenstein, Marshall Islands, Micronesia (Federated States of), Monaco, Nauru, Qatar, San Marino, Singapore, South Sudan, Timor-Leste, United Arab Emirates, Western Sahara.

Figure 1. Proportions of national breed populations for which population data have been reported

⁸ CGRFA-14/13/Report, paragraph 32.



III. BREED DIVERSITY

A global total of 8 822 breeds (compared to 8 774 in 2014 and 8 262 in 2012) has been reported; 7 761 are local breeds (compared to 7 718 in 2014 and 7 020 in 2012) and 1 061 are transboundary breeds (compared to 1 056 in 2014 and 1 060 in 2010). Among the transboundary breeds, 499 (compared to 510 in 2014 and 509 in 2012) are regional transboundary breeds (reported in only one region) and 562 (compared to 546 in 2014 and 551 in 2012) are international transboundary breeds (reported in more than one region). Presently, 7 percent or 643 breeds (compared to 647 in 2014 and 628 in 2012) are classified as extinct of which 4 (compared to 4 in 2012 and 7 in 2012) are transboundary breeds (3 regional and 1 international). Unless otherwise indicated, extinct breeds were excluded from the analyses undertaken to produce the results presented in the subsequent sections of this document.

Figure 2 shows the share of local, regional transboundary and international transboundary breeds among the mammalian and avian breeds of the world. Around two-thirds of reported breeds belong to mammalian species. In these species, the number of regional transboundary breeds is slightly larger than the number of international transboundary breeds. Conversely in avian species, international transboundary breeds outnumber regional transboundary breeds by nearly a 2-to-1 margin.

Mammalian breeds outnumber avian breeds in all regions of the world (Figure 3). Considerable variation exists among regions in terms of the proportions of the three breed distribution categories in the total number of breeds. In Europe and the Caucasus, Asia, and the Near and Middle East, local breeds make up more than three-quarters of all breeds. In Africa and the Latin America and the Caribbean region, the proportion of local breeds is smaller, but still exceeds 60 percent of all breeds. Conversely, international transboundary breeds are a majority in the Southwest Pacific and North America (Figure 3).

Regional transboundary mammalian breeds are relatively numerous (more than 5 percent of the respective total number of breeds in the region) in Europe and the Caucasus, Africa, and North America. In only Europe and the Caucasus are there large numbers of regional transboundary avian breeds (68 such breeds in Europe and the Caucasus versus fewer than 10 each of the other regions).

Figure 2. Number of local and transboundary breeds at global level

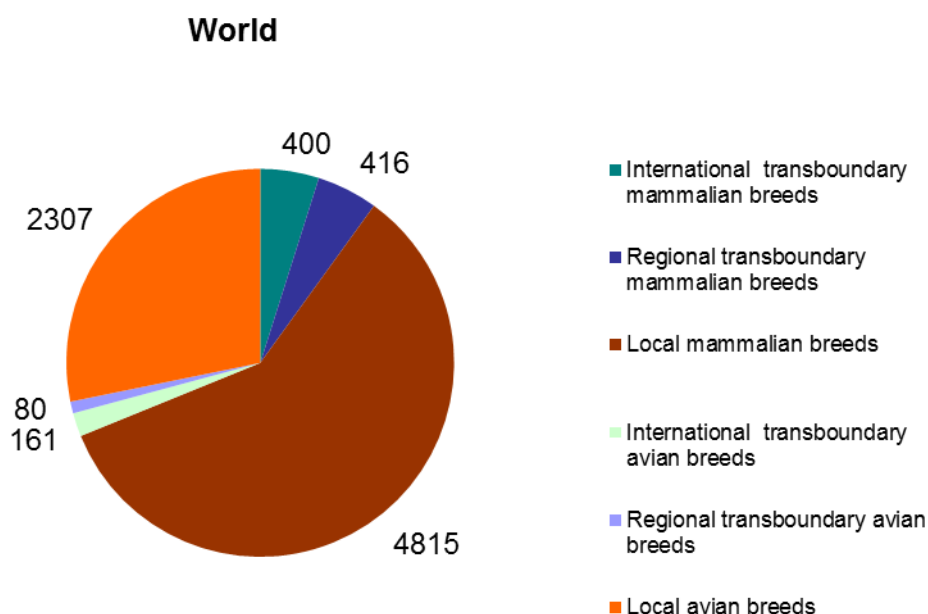
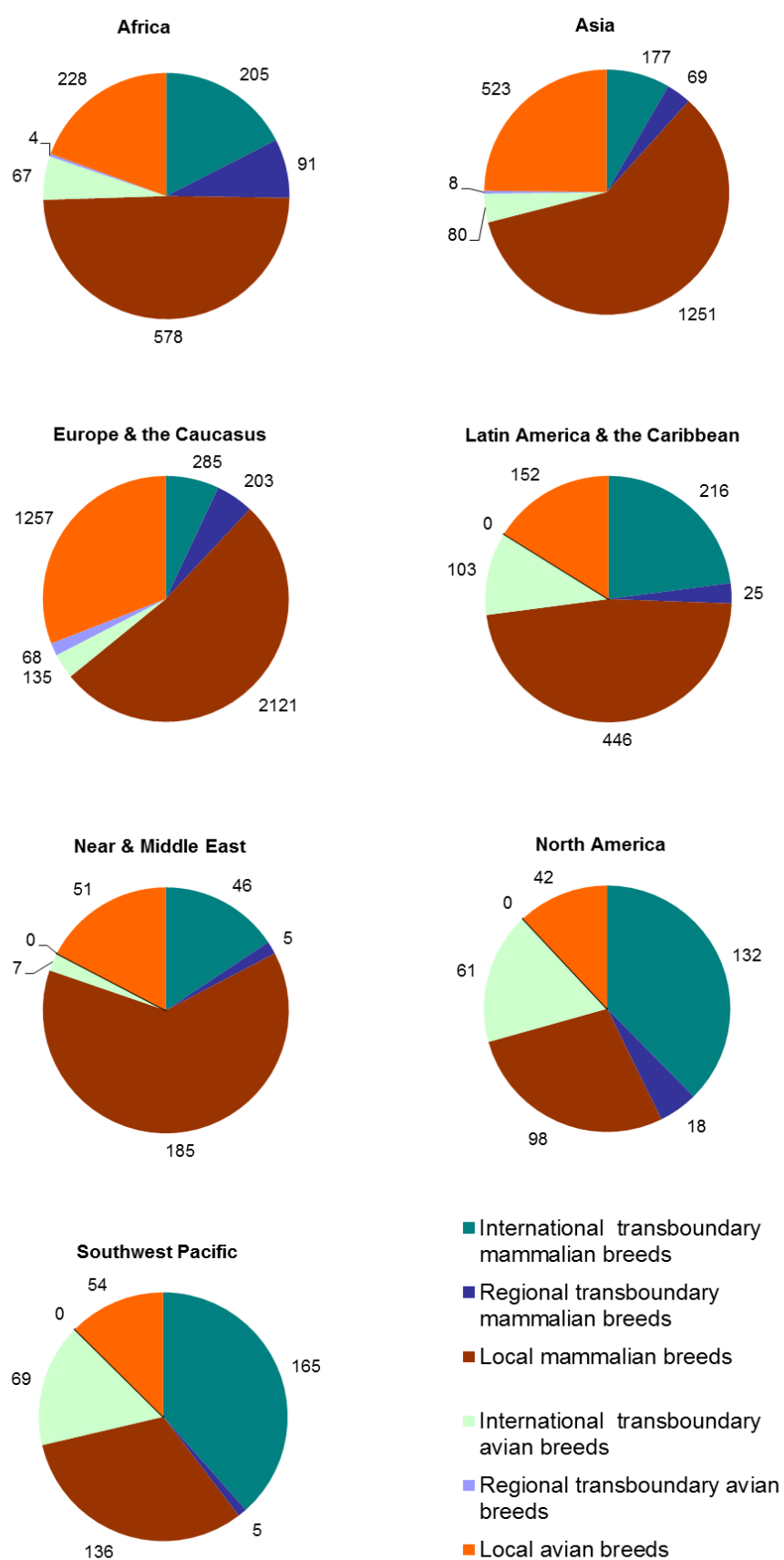


Figure 3. Number of local and transboundary breeds at regional level

Note that international transboundary breeds are counted in each region where they occur. Therefore, for this category of breeds, the global total is not the sum of the regional totals.

Tables 2 and 3, respectively, show the numbers of reported local breeds of mammalian and avian species for each region of the world. For most livestock species, Europe and the Caucasus and Asia has the largest number of local breeds. The dromedary, with most local breeds located in Africa and the Near and Middle East, and the guinea pig, with most local breeds located in Latin America and the Caribbean, are exceptions to this pattern. The totals in some categories have decreased relative to past years, because some countries have corrected their inventories.

Table 2. Mammalian species – numbers of reported local breeds

Species	Africa	Asia	Europe & the Caucasus	Latin America & the Caribbean	Near & Middle East	North America	Southwest Pacific	World
Ass	19	39	52	24	13	5	3	155
Bactrian camel	0	9	3	0	0	0	0	12
Buffalo	3	90	8	11	5	1	2	120
Cattle	178	242	375	141	39	17	32	1024
Dromedary	46	13	1	0	23	0	2	85
Goat	97	183	221	28	33	6	11	579
Guinea pig	4	0	0	13	0	0	0	17
Horse	40	138	379	85	14	22	25	703
Pig	55	218	190	60	1	12	15	551
Rabbit	11	16	197	18	7	8	0	257
Sheep	117	262	617	51	50	22	38	1157
Yak	0	25	2	0	0	1	0	28
Others	8	16	76	15	0	4	8	127
Total	578	1251	2121	446	185	98	136	4815

Note : Figures exclude extinct breeds. Figures for Alpaca, American bison, deer, dog, dromedary × Bactrian camel, guanaco, llama and vicuña are combined in the “others” category

Table 3. Avian species – numbers of reported local breeds

Species	Africa	Asia	Europe & the Caucasus	Latin America & the Caribbean	Near & Middle East	North America	Southwest Pacific	World
Chicken	133	307	909	88	33	15	30	1515
Duck	15	92	107	22	3	1	12	252
Goose	10	44	119	5	2	0	2	182
Muscovy duck	5	9	6	1	1	0	2	24
Ostrich	6	2	3	0	0	0	1	12
Partridge	2	8	2	0	0	0	0	12
Pheasant	0	7	5	6	0	0	0	18
Pigeon	7	13	35	7	8	1	2	73
Turkey	11	11	40	11	2	11	5	91
Others	39	30	31	12	2	14	0	128
Total	228	523	1257	152	51	42	54	2307

Note: Figures exclude extinct breeds. Figures for cassowary, Chilean tinamou, duck × Muscovy duck, emu, guinea fowl, ñandu, peacock, quail and swallow are combined in the “others” category.

Tables 4 and 5, respectively, show the numbers of reported regional transboundary breeds of mammalian and avian species in each region of the world. For several mammalian species, including sheep, horses, rabbit and pigs, Europe and the Caucasus has the largest number of regional transboundary breeds. Africa has more regional transboundary breeds of cattle and goats than any other region. Europe and the Caucasus, however, has by far the most regional transboundary breeds among avian species.

The existence of large numbers of regional transboundary breeds has implications for management and conservation of animal genetic resources, and highlights the need for cooperation at regional or subregional levels.

Table 4. Mammalian species – numbers of reported regional transboundary breeds

Species	Africa	Asia	Europe & the Caucasus	Latin America & the Caribbean	Near & Middle East	North America	Southwest Pacific	World
Ass	4	3	0	1	0	0	0	8
Buffalo	1	9	1	1	0	0	0	12
Cattle	35	19	31	6	1	2	1	95
Deer	0	1	1	0	0	0	0	2
Dromedary	1	1	0	0	0	0	0	2
Goat	15	12	14	1	0	5	1	48
Guinea pig	0	0	0	1	0	0	0	1
Horse	6	8	37	2	0	3	0	56
Pig	3	2	16	5	0	2	0	28
Rabbit	3	0	30	1	0	0	0	34
Sheep	23	14	73	4	4	6	3	127
South American camelids	0	0	0	3	0	0	0	3
Total	91	69	203	25	5	18	5	416

Note: Figures exclude extinct breeds.

Table 5. Avian species – numbers of reported regional transboundary breeds

Species	Africa	Asia	Europe & the Caucasus	Latin America & the Caribbean	Near & Middle East	North America	Southwest Pacific	World
Chicken	4	3	42	0	0	0	0	49
Duck	0	2	12	0	0	0	0	14
Goose	0	2	7	0	0	0	0	9
Quail	0	1	0	0	0	0	0	1
Turkey	0	0	7	0	0	0	0	7
Total	4	8	68	0	0	0	0	80

Note: Figures exclude extinct breeds.

Tables 6 and 7, respectively, show the numbers of reported international transboundary mammalian and avian breeds. Cattle, sheep, horses and chickens are the species that have the greatest numbers of international transboundary breeds.

Table 6. Mammalian species – numbers of reported international transboundary breeds

Species	Number of breeds
Alpaca	2
Ass	6
Bactrian camel	2
Buffalo	3
Cattle	111
Deer	10
Dromedary	2
Goat	38
Horse	69

Species	Number of breeds
Pig	31
Rabbit	25
Sheep	101
Total	400

Note: Figures exclude extinct breeds.

Table 7. Avian species – numbers of reported international transboundary breeds

Species	Number of breeds
Cassowary	1
Chicken	107
Duck (domestic)	12
Emu	1
Goose (domestic)	14
Guinea fowl	5
Muscovy duck	1
Ostrich	3
Pigeon	1
Turkey	16
Total	161

Note: Figures exclude extinct breeds.

IV. RISK STATUS OF ANIMAL GENETIC RESOURCES

In 2012, the method for assigning breeds to risk-status categories has been amended by the introduction of a cut-off point of ten years, beyond which the risk status of a breed is considered to be unknown if no updated population data have been reported. The results presented in this section are therefore comparable to those presented in the *Status and trends of animal genetic resources – 2014*,⁹ but not to previous reports.

A total of 1 500 breeds (17 percent of all breeds including those that are extinct, as in 2014) are classified as being at risk. The percentage of breeds classified as being of unknown risk status has remained at 58 percent since 2014 (Figure 4).

Among mammalian species, horse, sheep and cattle are the mammalian species with the largest numbers of breeds at risk. However, rabbits (49 percent) followed by horses (23 percent) and asses (22 percent) are the species that have the largest proportions of breeds at risk. Figure 5 also shows the large number of breeds for which no risk-status data are available. The problem is especially notable in particular species (e.g. 93 percent for deer breeds, 63 percent for ass breeds and 98 percent for dromedary breeds). This lack of data is a serious constraint to effective prioritization and planning of breed conservation measures. Cattle are the species with the largest number of breeds (182) reported as extinct. Large numbers of extinct breeds of sheep (160), pig (108) and horse (83) are also reported. Some breeds may have become extinct before they were documented. Any such breeds will, clearly, be missing from this analysis.

Among avian species, chickens have by far the greatest number of breeds at risk on a world scale (Figure 6). The proportion of avian breeds of unknown risk status is even greater than for mammalian species. Extinct breeds have mainly been reported among chickens. A few cases among ducks, guinea fowl and turkeys have also been reported.

⁹ CGRFA-15/15/Inf.18 (<http://www.fao.org/3/a-mm278e.pdf>).

Figures 7 and 8 show the distribution of breeds at risk by region for mammalian and avian species. The regions with the highest proportions of their breeds classified as at risk are Europe and the Caucasus for mammalian breeds (32 percent) and avian breeds (34 percent) and North America for mammalian breeds (20 percent). These are the regions that have the most highly specialized livestock industries, in which production is dominated by a small number of breeds. In absolute terms, the Europe and the Caucasus region has by far the highest number of at risk breeds. Despite the apparent dominance of these two regions, problems in other regions may be obscured by the large number of breeds with unknown risk status. In other regions, more than 75 percent of breeds are of unknown status. Latin America and the Caribbean, the Near and Middle East, North America and the Southwest Pacific report no population data for nearly all of their avian breeds. Almost all (except one breed in Latin America and the Caribbean) of the avian breeds from these regions are therefore classified as being of unknown risk status. Likewise, for more than 90 percent of Africa’s breeds and more than 80 percent of Asia’s breeds, the lack of recent population data means that no risk status could be assigned for avian breeds.

Figure 4. Proportions of the world’s breeds by risk status category

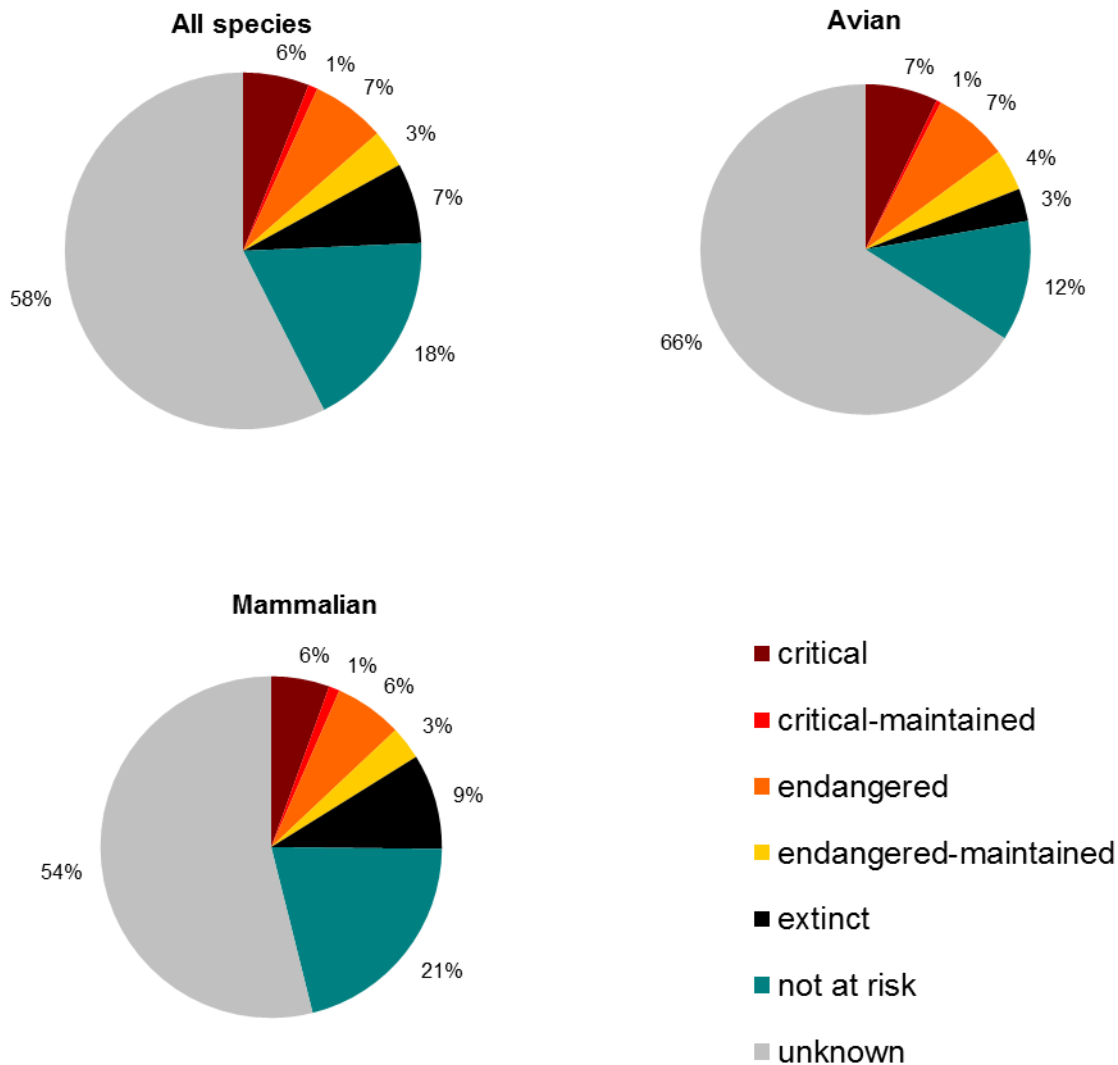
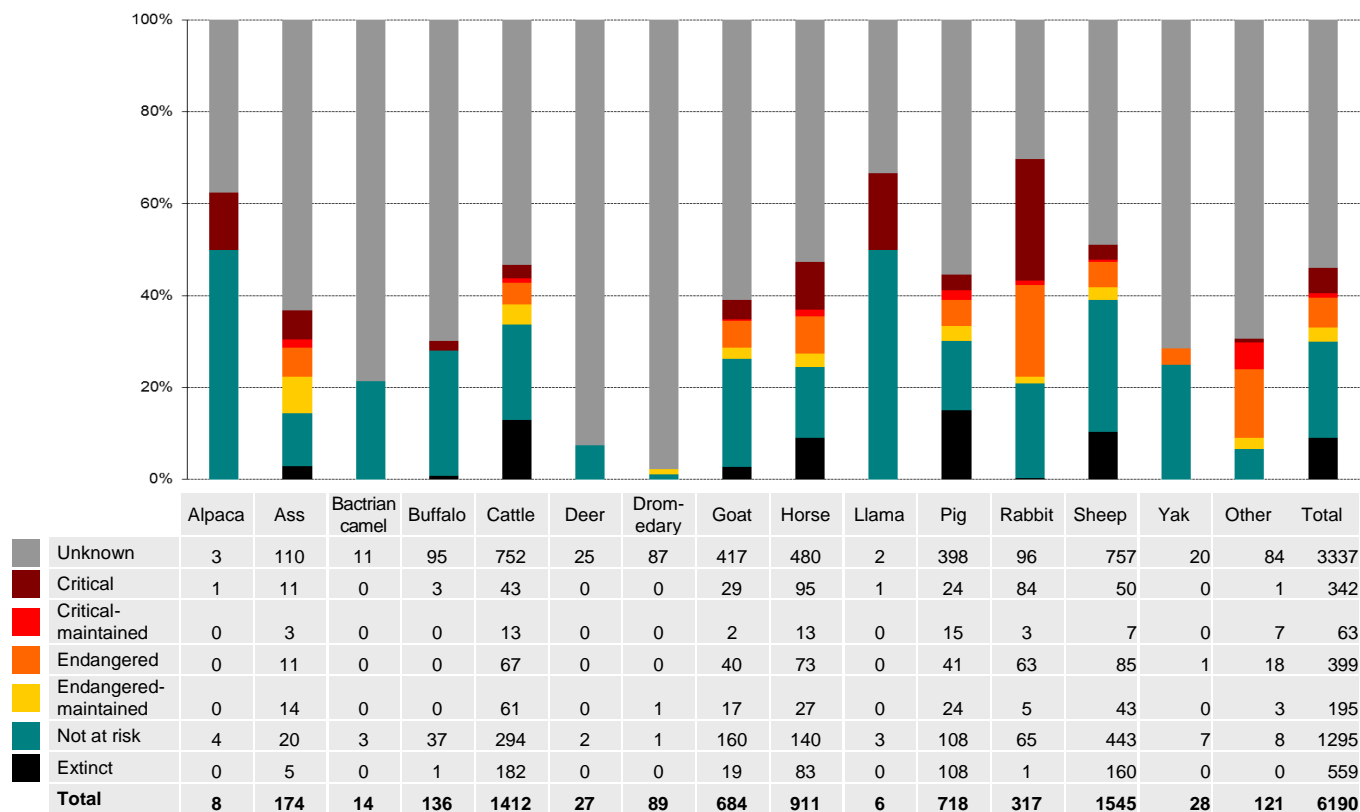
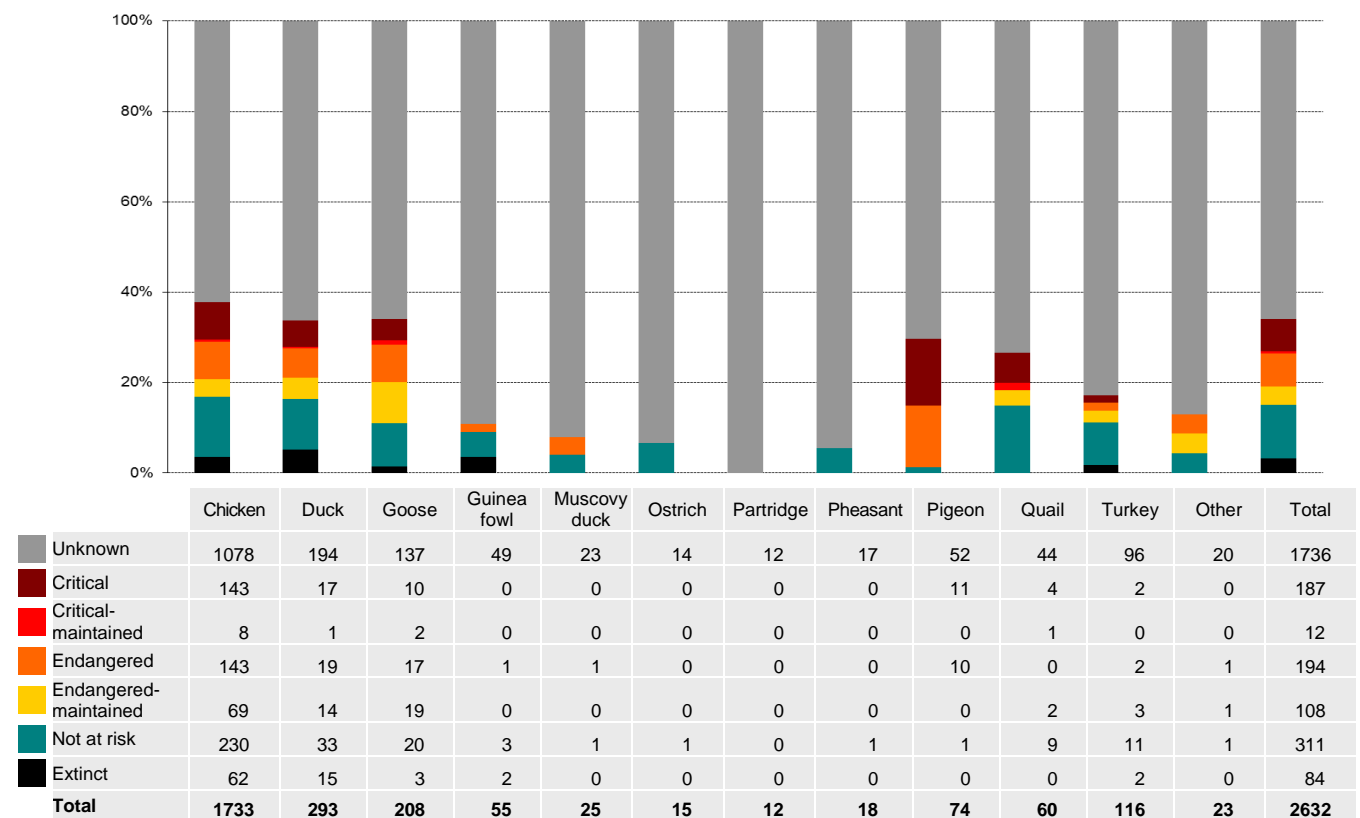


Figure 5. Risk status of the world's mammalian breeds in February 2016: absolute (table) and percentage (chart) figures by species



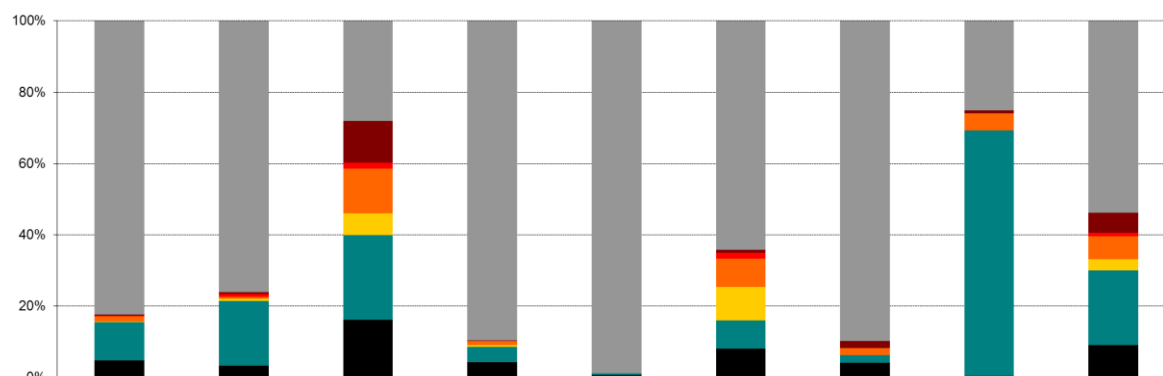
* Other: Bactrian camel × dromedary crosses, guanacos, vicuñas, guinea pigs and dogs.

Figure 6. Risk status of the world's avian breeds in February 2016: absolute (table) and percentage (chart) figures by species



* Other: duck × Muscovy duck crossings, Chilean tinamou, cassowaries, emus, ñandus, peacocks and swallows.

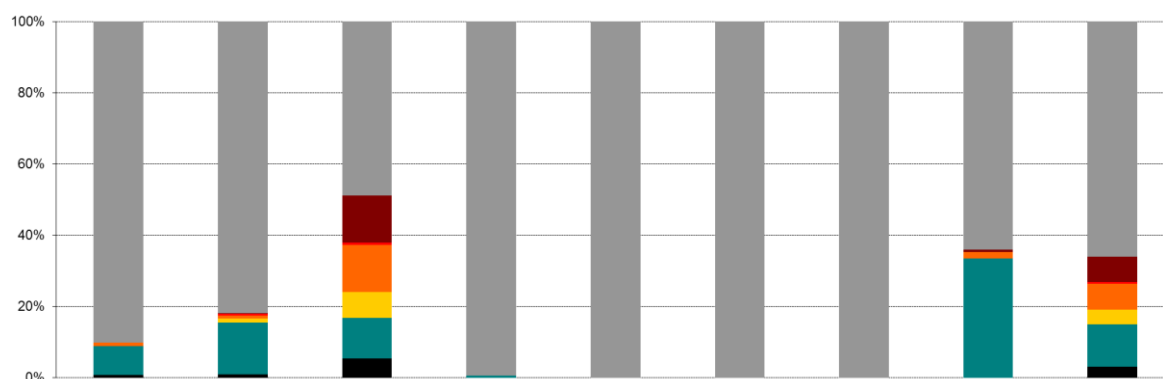
Figure 7. Risk status of the world's mammalian breeds in February 2016: absolute (table) and percentage (chart) figures by region



		Africa	Asia	Europe & the Caucasus	Latin America & the Caribbean	Near & Middle East	North America	Southwest Pacific	International transboundary breeds	World
Unknown		579	1038	776	441	189	81	132	101	3337
Critical		2	6	326	1	0	1	3	3	342
Critical-maintained		1	12	48	0	0	2	0	0	63
Endangered		10	6	345	6	0	10	3	19	399
Endangered-maintained		2	10	169	2	0	12	0	0	195
Not at risk		75	248	660	21	1	10	3	277	1295
Extinct		33	43	444	21	1	10	6	1*	559
Total		702	1363	2768	492	191	126	147	401	6190

*African Aurochs, which once lived in parts of both the Africa and the Near and Middle East regions.

Figure 8. Risk status of the world's avian breeds February 2016: absolute (table) and percentage (chart) figures by region



		Africa	Asia	Europe & the Caucasus	Latin America & the Caribbean	Near & Middle East	North America	Southwest Pacific	International transboundary breeds	World
Unknown		211	439	685	151	51	42	54	103	1736
Critical		0	1	185	0	0	0	0	1	187
Critical-maintained		0	2	10	0	0	0	0	0	12
Endangered		2	5	184	0	0	0	0	3	194
Endangered-maintained		0	6	102	0	0	0	0	0	108
Not at risk		19	78	159	1	0	0	0	54	311
Extinct		2	5	77	0	0	0	0	0	84
Total		234	536	1402	152	51	42	54	161	2632

Tables 8 and 9 present the numbers of extinct mammalian and avian breeds by species and region. The numbers of breeds reported to be extinct slightly decreased from 2014 to 2016, from 647 to 643, due to corrections to inventories that have been made by some countries. Europe and the Caucasus has reported far more extinct mammalian and avian breeds than any other region – 79 percent of the extinct mammalian breeds and 91 percent of avian breeds are reported from this region. The dominance of Europe and the Caucasus in terms of the number of breeds reported as extinct may relate, at least in part, to the relatively advanced state of breed inventory and monitoring in this region, in addition to socioeconomic factors affecting breed development. The year of extinction has been reported for only 33 percent of extinct breeds (217). Ninety-six breeds became extinct after 2000 (Table 10), a large number (54) of which were avian breeds, mostly industrial lines that are no longer actively bred.

Table 8. Numbers of extinct mammalian breeds

Species	Africa	Asia	Europe & the Caucasus	Latin America & the Caribbean	Near & Middle East	North America	South-west Pacific	International transboundary breeds	World
Ass	1	0	3	0	1	0	0	0	5
Buffalo	0	0	1	0	0	0	0	0	1
Cattle	20	19	119	20	0	1	2	1	182
Goat	1	2	16	0	0	0	0	0	19
Horse	6	1	67	0	0	8	1	0	83
Pig	0	15	91	1	0	0	1	0	108
Rabbit	0	0	1	0	0	0	0	0	1
Sheep	5	6	146	0	0	1	2	0	160
Total	33	43	444	21	1	10	6	1	559

Table 9. Number of extinct avian breeds

Species	Africa	Asia	Europe & the Caucasus	Latin America & the Caribbean	Near & Middle East	North America	Southwest Pacific	World
Chicken	0	5	57	0	0	0	0	62
Duck	0	0	15	0	0	0	0	15
Goose	0	0	3	0	0	0	0	3
Guinea fowl	2	0	0	0	0	0	0	2
Turkey	0	0	2	0	0	0	0	2
Total	2	5	77	0	0	0	0	84

Table 10. Years of extinction

Year	Number of breeds	Proportion (%)
Unspecified	426	66
1900 and before	11	2
1901-2000	110	17
2001-2010	64	10
after 2010	32	5
Total	643	100

V. TRENDS IN BREED STATUS AND DIVERSITY

The data presented in this report indicate no changes with regard to the number of breeds or proportion of breeds falling into different risk categories during the reporting period. The numbers of national breed populations and breeds have been almost stable. In terms of risk status, between 2014 and 2016, the same proportions of breeds were classified to be of status unknown (58 percent), at risk (17 percent), not at risk (18 percent), and extinct (7 percent).

VI. ANIMAL GENETIC RESOURCES REFLECTED IN THE SUSTAINABLE DEVELOPMENT GOALS

The 2030 Agenda for Sustainable Development was adopted at the UN Post-2015 Summit on 25 September 2015, and it includes 17 proposed Strategic Development Goals (SDG) and 169 targets. The United Nations Statistical Commission (UNSC) at its forty-sixth session (3 - 6 March 2015) discussed and agreed on the process and modalities for the development of the indicator framework. It endorsed the establishment of the Inter-Agency and Expert Group on SDG indicators (IAEG-SDG), consisting of national statistical offices, and as observers the regional, international organizations and agencies. The IAEG-SDG is tasked to fully develop the indicator framework for the monitoring of the goals and targets of the post-2015 development agenda. The Report of the IAEG-SDG from February 2016¹⁰ invites the Statistical Commission to adopt two indicators directly related to animal genetic resources, related to SDG target 2.5.

Target 2.5 is described as “*By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed*”.

The following two indicators related to this target are proposed by the IAEG-SDG:

SDG indicator 2.5.1: Number of plant and animal genetic resources for food and agriculture secured in either medium or long term conservation facilities;

SDG indicator 2.5.2: Proportion of local breeds, classified as being at risk, not-at risk or unknown level of risk of extinction.

With regard to the proposed SDG indicator 2.5.1., DAD-IS already provides the possibility for countries to report information on cryconservation programmes for each breed. Furthermore, the analysis of the country reports provided by 128 countries for the preparation of *The Second Report on the State of the World's Animal Genetic Resources for Food and Agriculture*¹¹ provides a baseline with regard to the number of national breed populations where sufficient material is stored. Results are presented by region in Figure 9. Genetic material is cryoconserved for only a low proportion (15 percent) of national breed populations. In addition, the amount of material per population tends to be small. For only 7 percent of populations is the quantity of stored material sufficient to for population reconstitution, according to the country reports. The proportions of breeds with cryoconserved material differ across regions, but exceeds 25 percent only in North America (corresponding solely to United State of America), where material is stored for 49 percent of national breed populations.

Data required to calculate the proposed SDG indicator 2.5.2 are already collected in DAD-IS and results are presented in Figure 10. Across the world, when excluding extinct breeds, 65 percent of local breeds are classified as of unknown status, 20 percent as at risk, and 16 percent as not at risk. This result differs substantially from the proportions obtained when considering local and transboundary breeds together (Figure 4), inasmuch as the majority of transboundary breeds are considered as not at risk. Results also differ widely across regions. In all regions but Europe, more than 75 percent of local breeds are of unknown status. In Europe, 41 percent of local breeds are of unknown status, 39 percent are considered as at risk, and 21 percent not at risk.

¹⁰ E/CN.3/2016/2/Rev.1

¹¹ <http://www.fao.org/publications/sowangr/en/>

Figure 9. Proposed indicator 2.5.1. of the Sustainable Development Goals on the numbers of national breed populations with material stored in a cryobank by region, based on 128 country reports

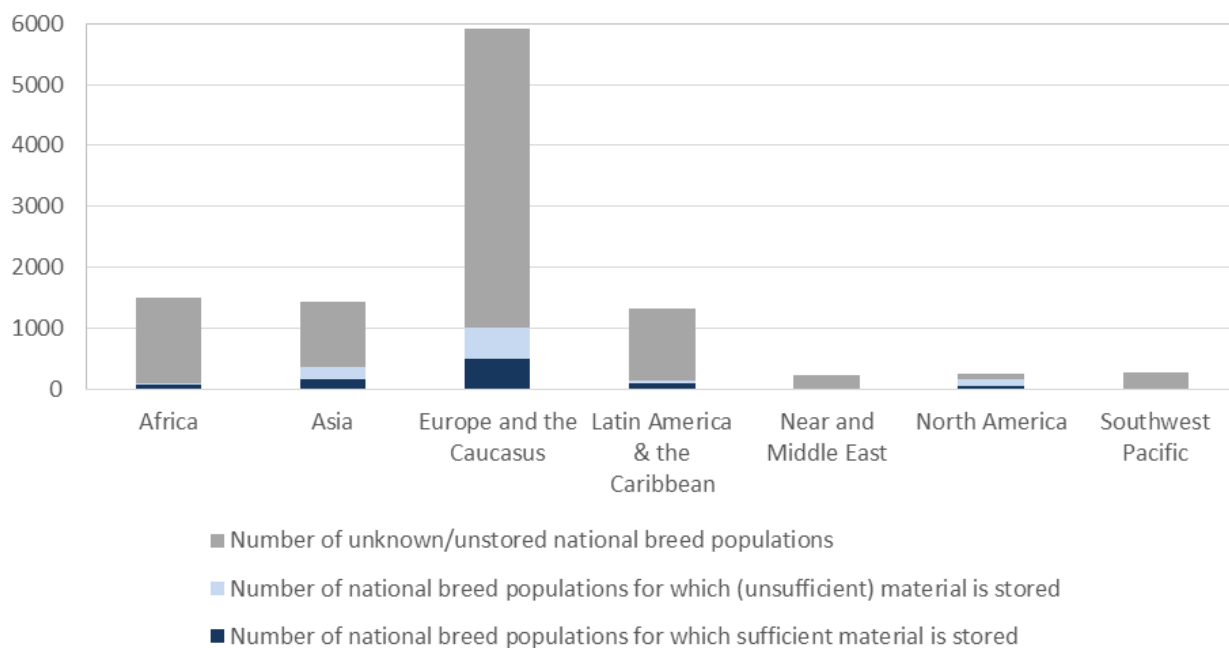
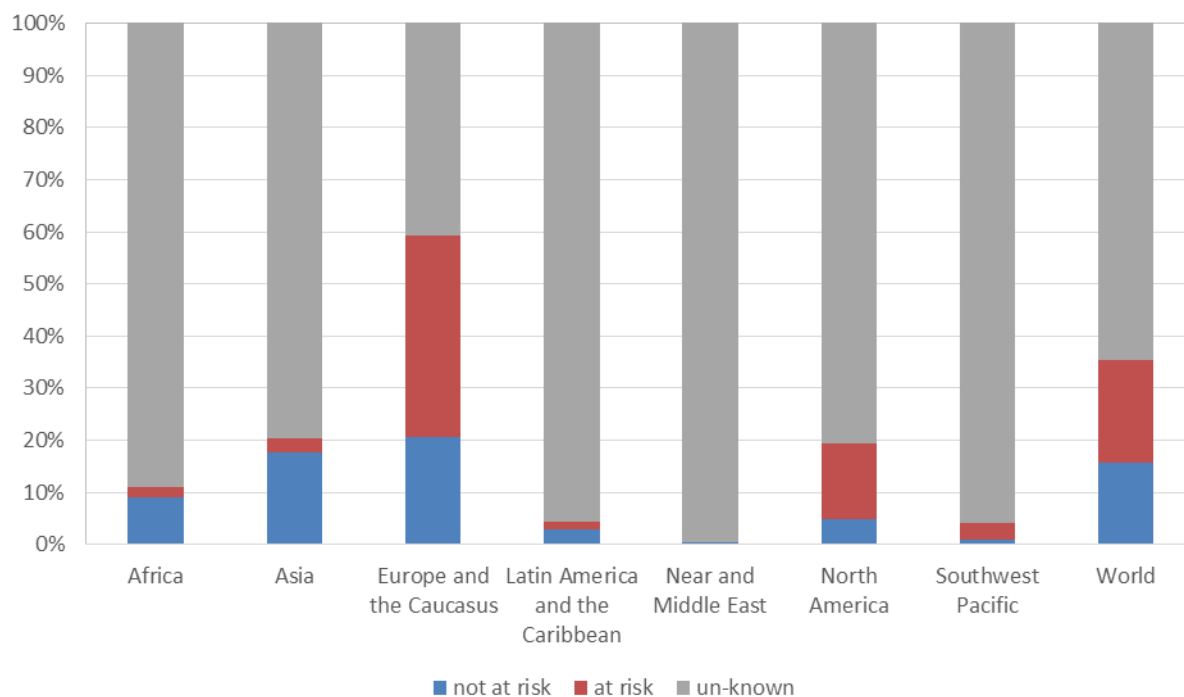


Figure 10. Proposed indicator 2.5.2. of the Sustainable Development Goals on the proportions of local breeds, classified as being at risk, not-at risk or unknown level of risk of extinction



VII. CONCLUSIONS

During the period between June 2014 and February 2016 the coverage of the Global Databank for Animal Genetic Resources remained stable. Breed-related information still remains far from complete. For almost 60 percent of all reported breeds, risk status is not known because of missing population data or the lack of recent updates.

Due to the lack of data regarding the adaptedness (i.e., locally adapted versus exotic) classification of breeds, indicators, figures and tables based on this classification system were not calculated and presenting such data in future reports will depend on availability of data.

Amendments in DAD-IS are planned to facilitate reporting on the number of national breed populations with genetic material in conservation programmes. Results for this proposed SDG indicator (number 2.5.1.) may then be included in the future status and trends reports to the Commission.

Explicit reporting on the proportions of local breeds classified as being at risk, not at risk or unknown with respect to risk of extinction is foreseen to become an inherent part of future status and trends reports, thereby linking this report directly to the indicators under the SDGs and reflecting better the dramatic situation of local breeds.

The examples for the proposed SDG indicator 2.5.2, shown here for the first time, clearly demonstrate that DAD-IS is a suitable information system for monitoring a specific target under the SDGs, in addition to serving its long-term purpose as the CBD Clearing House for information on diversity of animal genetic resources. The further development of DAD-IS will allow the regular provision of up-to-date data for the annual reports on the SDGs, but will require more frequent reporting of breed data by FAO Members.

Annex 1

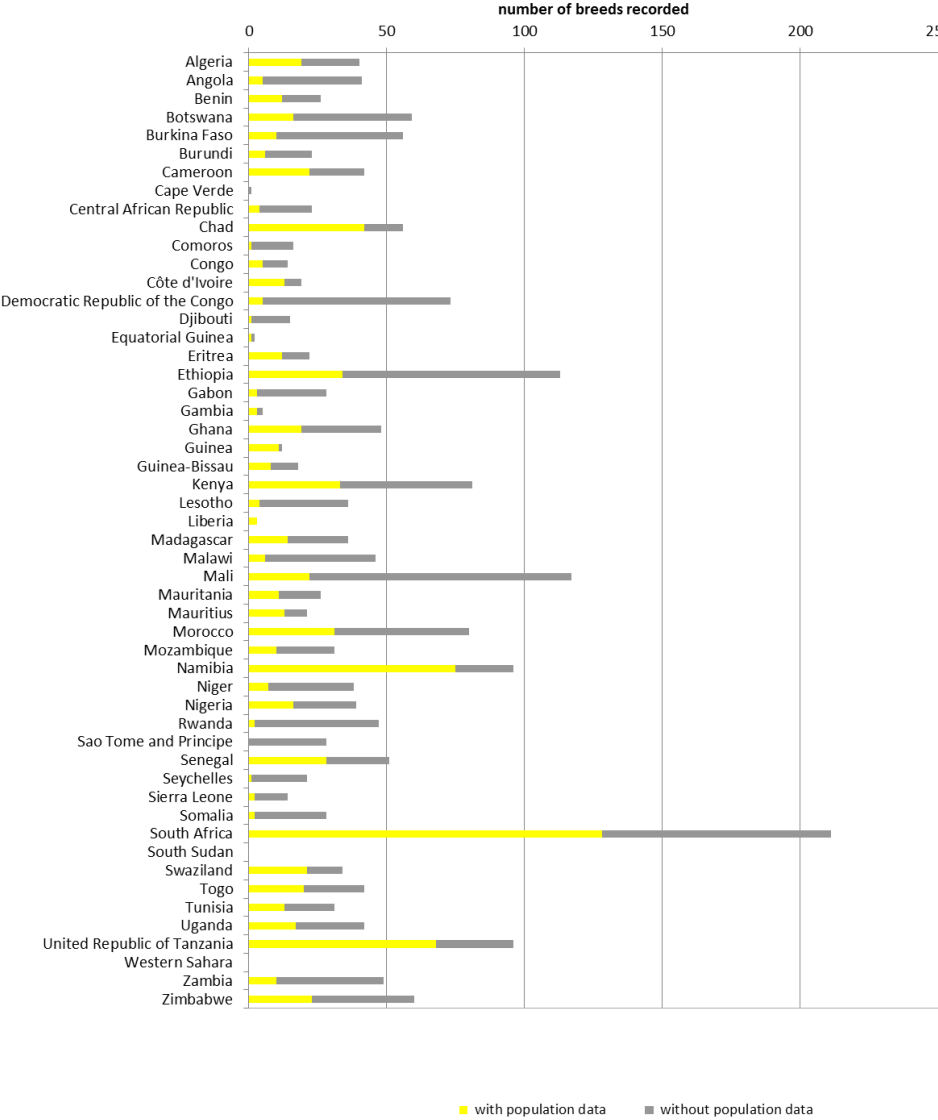
Status of population data reported by each country and region

- 1.1. Africa
- 1.2. Asia
- 1.3. Europe and the Caucasus
- 1.4. Latin America and the Caribbean
- 1.5. Near and Middle East
- 1.6. North America
- 1.7. Southwest Pacific

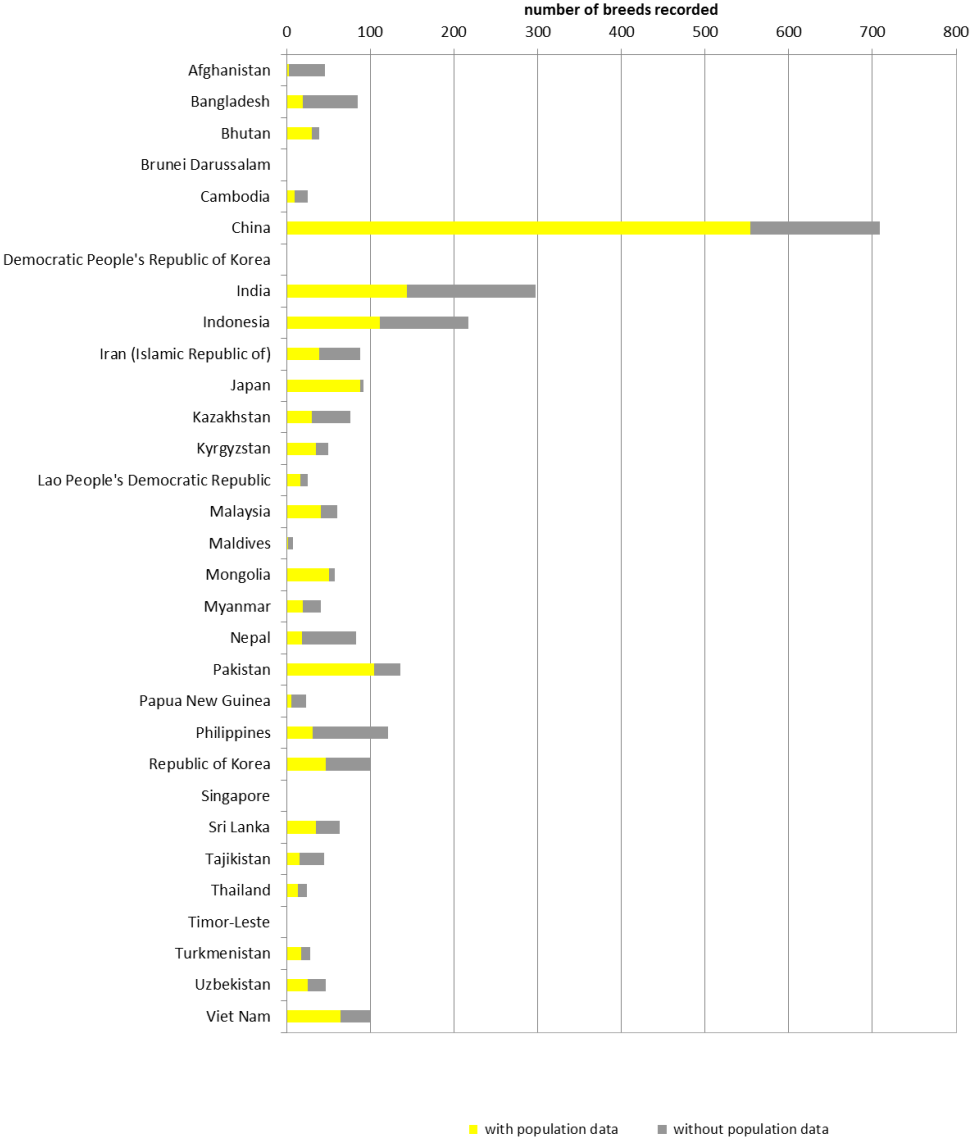
This annex allows countries to view the state of completeness of their breed population data in DAD-IS. They can also see how their progress in entering population data compares to that of other countries in their respective regions.

The graphics show the number of breeds for which population data have been recorded and the number of breeds that have been entered into DAD-IS for which no population data have yet been recorded. Dependent territories are listed below the respective country.

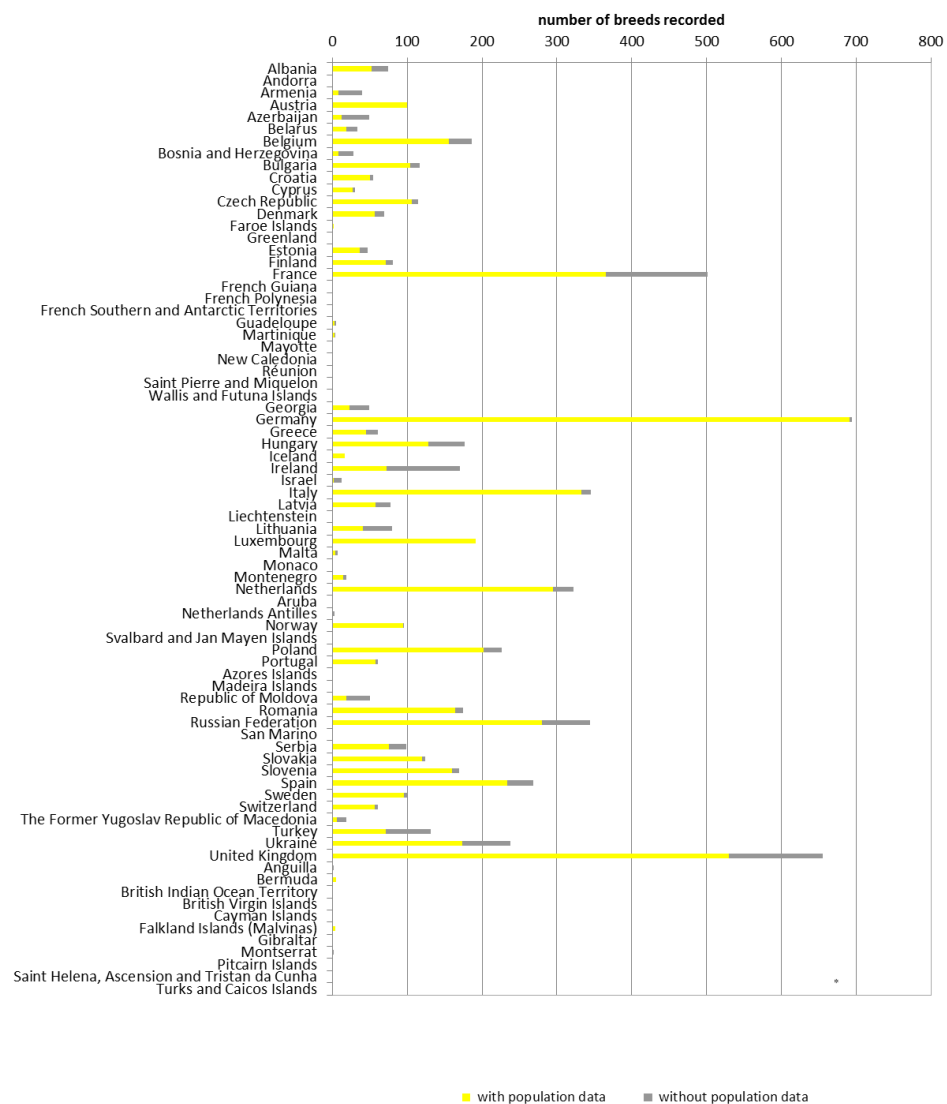
1.1 Africa



1.2 Asia

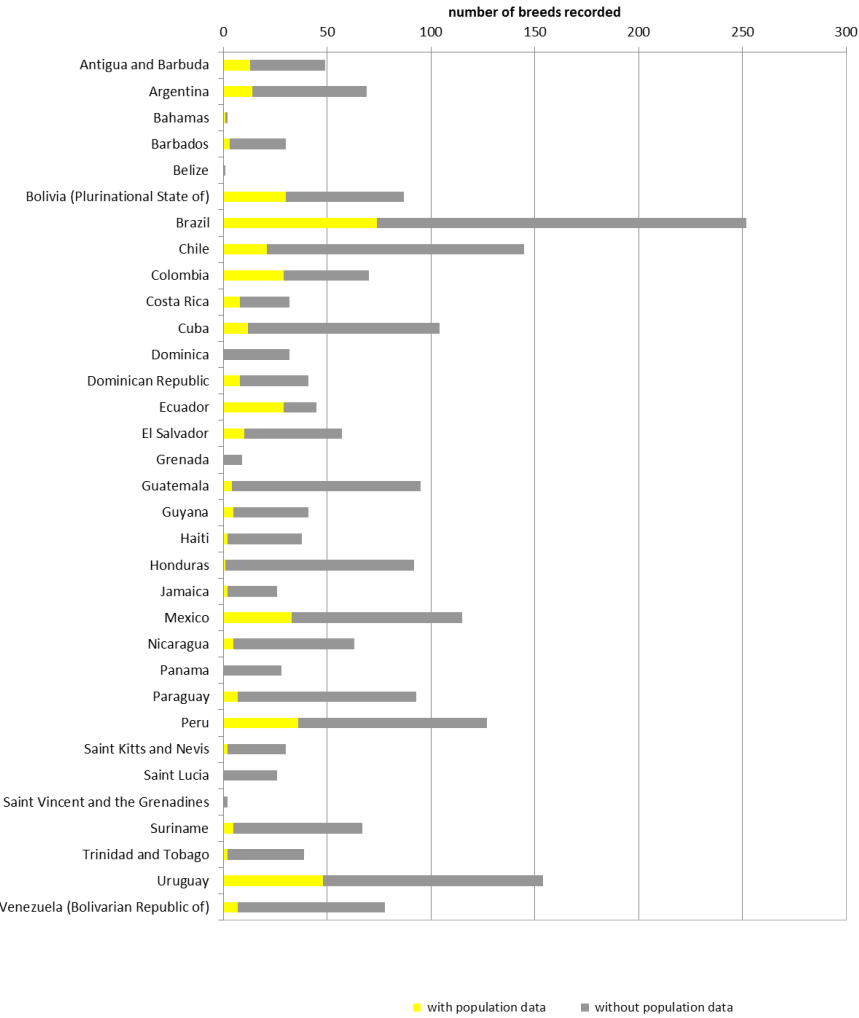


1.3 Europe and the Caucasus

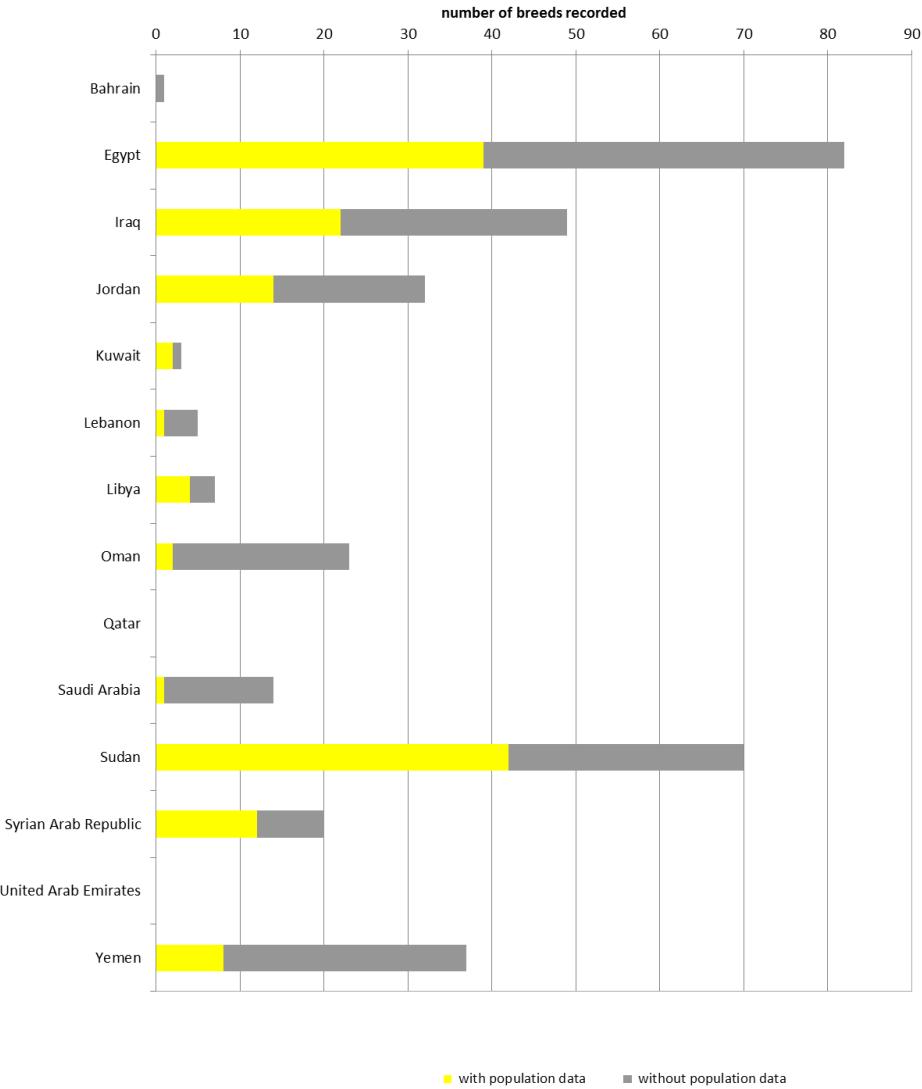


*A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas). (Editorial directive ST/CS/SER.A/42, United Nations Secretariat, 3 August 1999)

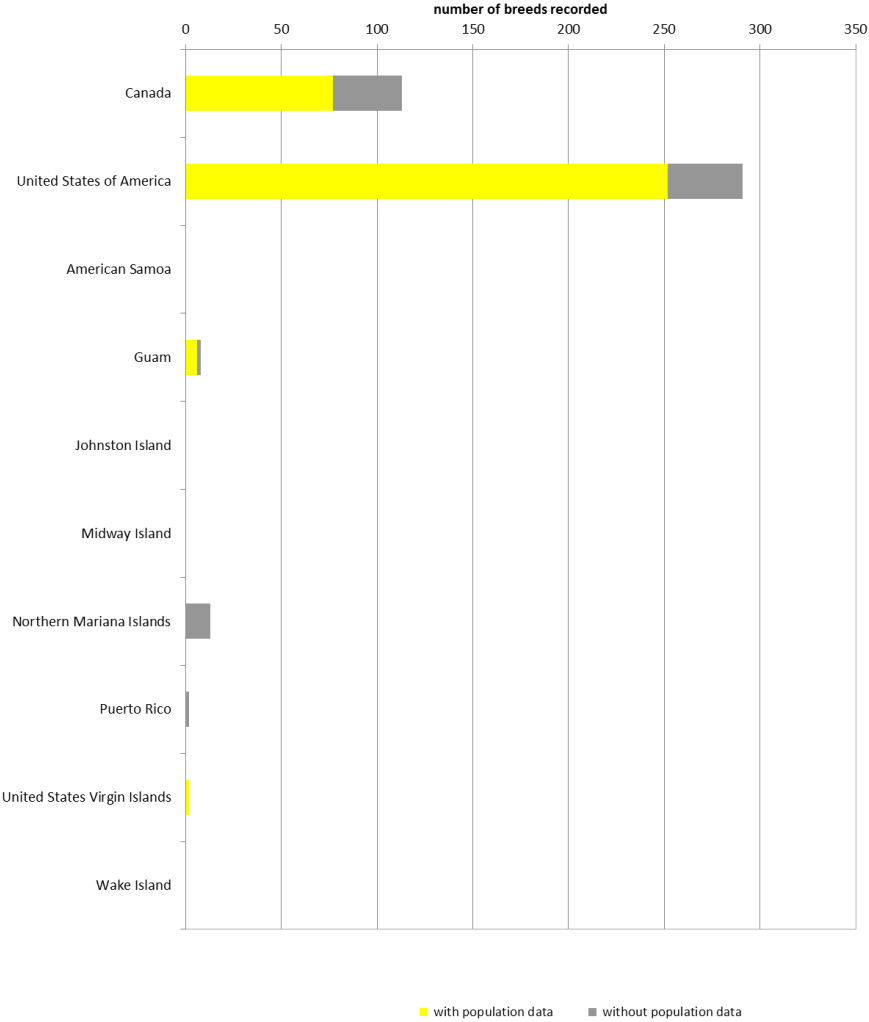
1.4 Latin America and the Caribbean



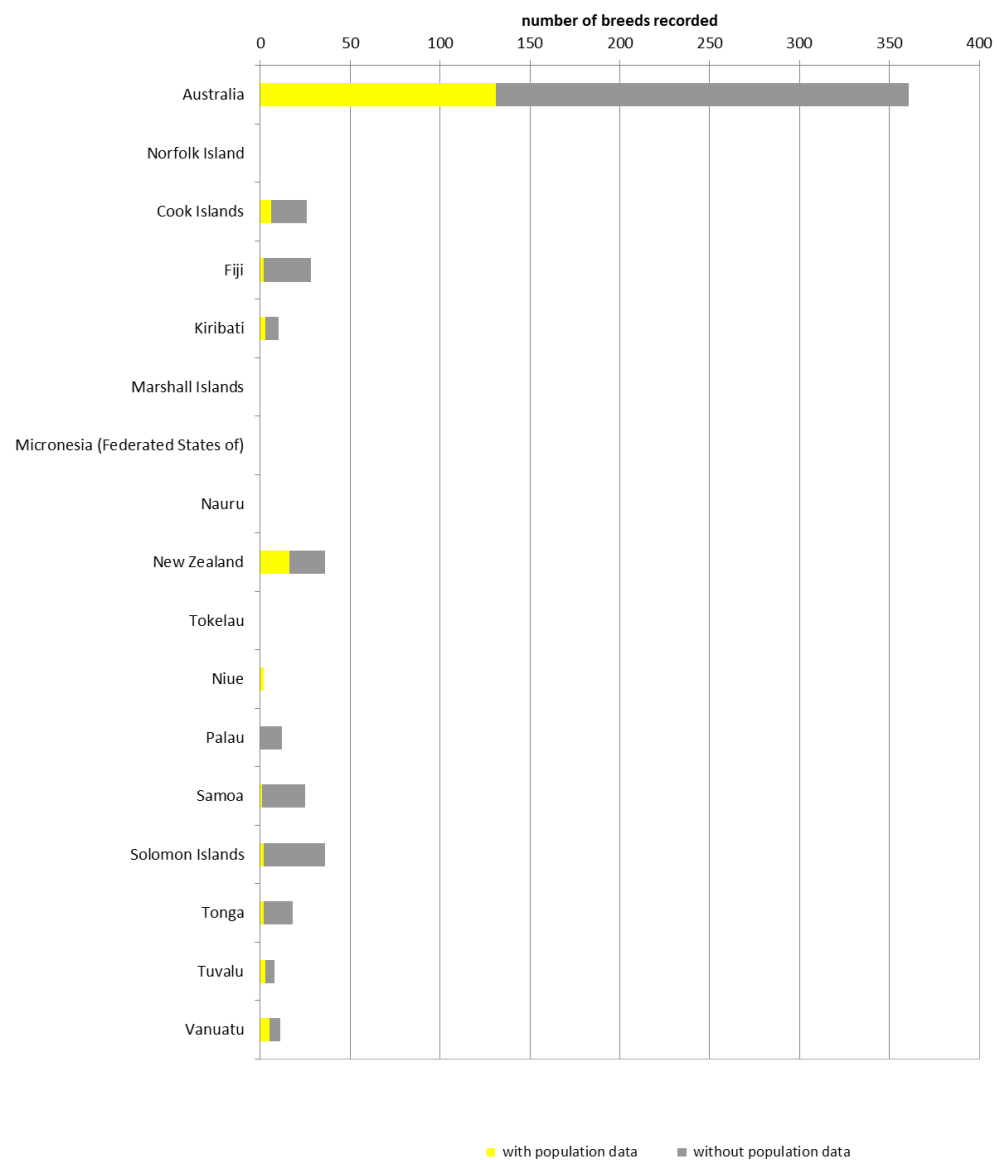
1.5 Near and Middle East



1.6 North America



1.7 Southwest Pacific



Annex 2

Numbers of local and transboundary breeds by risk status category reported by each country and region

- 2.0. Regional overview
- 2.1. Africa
- 2.2. Asia
- 2.3. Europe and the Caucasus
- 2.4. Latin America and the Caribbean
- 2.5. Near and Middle East
- 2.6. North America
- 2.7. Southwest Pacific

The tables in this annex show the numbers of local, regional transboundary and international transboundary breeds and their respective risk status by region and by country. Dependent territories are listed below the respective country. The tables will help countries to identify the need for action in surveying and monitoring and in conservation.

2.0 Regional Overview	Local			Regional			International			Total
Region	at risk	not at risk	un-known	at risk	not at risk	un-known	at risk	not at risk	un-known	
Africa	15	74	717	2	20	73	8	194	70	1173
Asia	48	312	1414	0	14	63	9	154	94	2108
Europe and the Caucasus	1303	699	1376	66	120	85	22	271	127	4069
Latin America and the Caribbean	9	18	571	0	4	21	9	225	85	942
Near and Middle East	0	1	235	0	0	5	0	27	26	294
North America	20	7	113	5	3	10	9	137	47	351
Southwest Pacific	6	2	182	0	1	4	10	164	60	429
World	1401	1113	4608	73	162	261	26	331	204	8179

2.1 Africa	Local			Regional			International			Total
Country	at risk	not at risk	un-known	at risk	not at risk	un-known	at risk	not at risk	un-known	
Algeria	0	0	16	0	0	8	0	2	11	37
Angola	0	0	18	0	0	2	0	12	9	41
Benin	0	0	10	0	1	6	0	3	5	25
Botswana	2	1	6	0	4	1	0	32	13	59
Burkina Faso	0	0	22	0	2	8	0	12	12	56
Burundi	0	4	3	0	0	0	0	11	5	23
Cameroon	0	0	21	0	2	8	0	6	2	39
Cape Verde	0	0	0	0	0	0	0	0	1	1
Central African Republic	0	0	9	0	2	4	0	4	4	23
Chad	0	0	35	0	0	11	0	1	9	56
Comoros	0	0	7	0	0	1	0	6	2	16
Congo	0	0	3	0	1	2	0	2	6	14
Côte d'Ivoire	0	0	10	0	1	5	0	0	3	19
Democratic Republic of the Congo	0	0	24	0	1	4	0	24	20	73
Djibouti	0	0	9	0	0	2	0	2	2	15

2.1 Africa	Local			Regional			International			Total
Country	at risk	not at risk	un-known	at risk	not at risk	un-known	at risk	not at risk	un-known	
Equatorial Guinea	0	0	0	0	1	0	0	0	1	2
Eritrea	0	0	6	0	0	11	0	1	4	22
Ethiopia	0	3	68	0	1	14	0	16	10	112
Gabon	0	0	9	0	0	6	0	7	6	28
Gambia	0	0	0	0	0	1	0	1	2	4
Ghana	0	1	20	0	1	6	0	8	11	47
Guinea	0	0	6	0	1	1	0	1	2	11
Guinea-Bissau	0	0	4	0	1	1	0	10	2	18
Kenya	0	8	19	0	2	6	1	37	8	81
Lesotho	0	0	10	0	1	0	0	17	7	35
Liberia	0	0	0	0	1	1	0	0	1	3
Madagascar	0	0	17	0	0	0	0	11	8	36
Malawi	0	4	9	0	1	2	0	19	10	45
Mali	0	0	57	0	3	16	0	19	22	117
Mauritania	0	0	6	0	2	9	0	4	5	26
Mauritius	2	0	4	1	0	0	0	12	2	21
Morocco	0	0	42	0	0	4	0	11	23	80
Mozambique	0	0	12	0	2	3	0	12	2	31
Namibia	10	14	6	1	4	1	0	52	8	96
Niger	0	1	22	0	4	6	0	1	4	38
Nigeria	0	0	16	0	3	14	0	0	4	37
Rwanda	1	0	11	0	0	1	0	19	15	47
Sao Tome and Principe	0	0	6	0	0	1	0	14	7	28
Senegal	0	9	5	0	4	4	0	14	14	50
Seychelles	0	0	1	0	0	2	0	13	5	21
Sierra Leone	0	0	0	0	1	0	0	7	6	14
Somalia	0	0	18	0	0	3	0	3	4	28
South Africa	0	0	66	1	4	4	3	74	45	197
South Sudan	0	0	0	0	0	0	0	0	0	0
Swaziland	0	0	15	0	2	2	0	14	1	34
Togo	0	0	7	0	1	10	0	10	13	41
Tunisia	0	0	8	0	0	1	0	4	16	29
Uganda	0	0	13	0	2	8	1	11	7	42
United Republic of Tanzania	0	28	20	0	11	4	0	27	4	94
Western Sahara	0	0	0	0	0	0	0	0	0	0
Zambia	0	0	15	0	0	2	1	19	12	49
Zimbabwe	0	1	6	0	4	2	1	33	10	57

2.2 Asia	Local			Regional			International			Total
Country	at risk	not at risk	un-known	at risk	not at risk	un-known	at risk	not at risk	un-known	
Afghanistan	0	0	37	0	1	6	0	1	1	46
Bangladesh	0	0	48	0	1	5	0	12	16	82
Bhutan	1	21	3	0	2	0	0	10	2	39
Brunei Darussalam	0	0	0	0	0	0	0	0	0	0
Cambodia	0	0	16	0	0	5	0	4	0	25
China	8	166	433	0	5	3	1	35	34	685
Democratic People's Republic	0	0	1	0	0	0	0	0	0	1
India	0	11	212	0	7	26	0	30	12	298
Indonesia	1	29	116	0	1	4	0	21	44	216
Iran (Islamic Republic of)	0	0	59	0	1	4	0	5	19	88
Japan	8	7	33	0	0	1	0	28	13	90
Kazakhstan	0	0	46	0	0	10	0	7	13	76
Kyrgyzstan	0	0	26	0	0	9	0	5	9	49
Lao People's Democratic	0	0	16	0	0	3	0	3	3	25
Malaysia	3	10	11	0	1	5	0	25	5	60
Maldives	0	0	4	0	0	0	0	3	1	8
Mongolia	0	1	39	0	0	4	0	9	5	58
Myanmar	0	0	19	0	0	1	1	16	4	41
Nepal	0	0	33	0	1	14	1	23	10	82
Pakistan	0	34	70	0	3	10	0	14	4	135
Papua New Guinea	0	0	9	0	0	1	0	11	2	23
Philippines	0	0	44	0	0	4	1	45	24	118
Republic of Korea	21	3	22	0	0	1	1	31	21	100
Singapore	0	0	0	0	0	0	0	0	0	0
Sri Lanka	1	7	13	0	5	4	0	26	8	64
Tajikistan	0	0	20	0	0	13	0	4	6	43
Thailand	0	0	18	0	0	5	0	1	0	24
Timor-Leste	0	0	0	0	0	0	0	0	0	0
Turkmenistan	0	0	10	0	0	8	0	3	3	24
Uzbekistan	0	0	21	0	0	12	0	3	9	45
Viet Nam	5	23	35	0	0	5	1	21	7	97

2.3 Europe and the Caucasus				Local			Regional			International			Total
Country	at risk	not at risk	un-known	at risk	not at risk	un-known	at risk	not at risk	un-known	at risk	not at risk	un-known	
Netherlands Antilles	0	0	0	0	0	0	0	2	1	3			
Norway	36	11	3	1	1	1	1	27	1	82			
Svalbard and Jan Mayen Islands	0	0	0	0	0	0	0	0	0	0			
Poland	69	38	16	5	10	2	2	45	3	190			
Portugal	9	39	2	0	2	0	0	9	0	61			
Azores Islands	0	0	0	0	0	1	0	0	0	1			
Madeira Islands	0	0	0	0	0	0	0	0	0	0			
Republic of Moldova	0	0	17	0	1	3	0	10	16	47			
Romania	0	0	93	1	1	17	0	10	33	155			
Russian Federation	0	0	178	0	3	28	0	25	48	282			
San Marino	0	0	0	0	0	0	0	0	0	0			
Serbia	16	1	15	1	13	2	1	39	9	97			
Slovakia	18	3	5	7	23	1	4	55	4	120			
Slovenia	18	8	36	1	7	20	0	23	52	165			
Spain	69	90	63	0	3	0	0	19	1	245			
Sweden	31	12	6	1	1	5	0	16	23	95			
Switzerland	8	15	4	2	7	1	0	10	0	47			
The Former Yugoslav Republic of Macedonia	0	0	7	0	1	0	0	8	3	19			
Turkey	11	18	58	0	0	4	1	13	6	111			
Ukraine	21	31	67	2	12	6	1	50	35	225			
United Kingdom	46	28	207	12	18	48	7	117	99	582			
Anguilla	0	0	0	0	0	0	0	1	1	2			
Bermuda	0	0	2	0	0	1	0	0	2	5			
British Indian Ocean Territory	0	0	0	0	0	0	0	0	0	0			
British Virgin Islands	0	0	0	0	0	0	0	0	1	1			
Cayman Islands	0	0	0	0	0	0	0	0	0	0			
Falkland Islands (Malvinas) ¹²	0	0	3	0	0	0	0	0	1	4			
Gibraltar	0	0	0	0	0	0	0	0	0	0			
Montserrat	0	0	0	0	0	0	0	1	1	2			
Pitcairn Islands	0	0	0	0	0	0	0	0	0	0			
Saint Helena, Ascension and Tristan da Cunha	0	0	0	0	0	0	0	0	0	0			
Turks and Caicos Islands	0	0	0	0	0	0	0	0	0	0			

¹² A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas). (Editorial directive ST/CS/SER.A/42, United Nations Secretariat, 3 August 1999)

2.4 Latin America and the Caribbean	Local			Regional			International			Total
Country	at risk	not at risk	unknown	at risk	not at risk	un-known	at risk	not at risk	un-known	
Antigua and Barbuda	0	0	7	0	0	1	0	27	14	49
Argentina	0	1	20	0	0	1	0	38	9	69
Bahamas	0	0	1	0	0	0	0	1	0	2
Barbados	0	0	6	0	0	0	0	17	7	30
Belize	0	0	1	0	0	0	0	0	0	1
Bolivia (Plurinational State of)	0	6	20	0	2	3	1	33	22	87
Brazil	0	0	92	0	0	1	1	85	58	237
Chile	0	1	46	0	1	4	0	45	47	144
Colombia	0	0	20	0	0	3	1	32	14	70
Costa Rica	0	0	4	0	1	2	0	17	7	31
Cuba	0	0	44	0	1	1	0	32	26	104
Dominica	0	0	3	0	0	0	0	21	8	32
Dominican Republic	0	0	6	0	1	3	0	20	10	40
Ecuador	0	2	17	0	1	1	0	24	0	45
El Salvador	0	0	8	0	1	3	0	21	24	57
Grenada	0	0	0	0	0	0	0	7	2	9
Guatemala	1	0	19	0	1	4	1	36	33	95
Guyana	0	0	10	0	0	1	0	23	7	41
Haiti	0	0	9	0	0	1	0	13	14	37
Honduras	0	0	22	0	0	5	0	43	22	92
Jamaica	0	0	8	0	0	0	0	16	2	26
Mexico	1	4	31	0	2	4	2	57	14	115
Nicaragua	0	0	9	0	1	2	1	34	16	63
Panama	0	0	3	0	1	2	0	16	6	28
Paraguay	0	0	18	0	0	1	0	55	19	93
Peru	4	1	29	0	3	4	2	62	22	127
Saint Kitts and Nevis	0	0	18	0	0	0	0	9	3	30
Saint Lucia	0	0	6	0	0	0	0	13	7	26
Saint Vincent and the Grenadines	0	0	0	0	0	0	0	1	1	2
Suriname	0	0	12	0	0	2	1	31	21	67
Trinidad and Tobago	0	0	4	0	0	1	0	22	12	39
Uruguay	3	3	51	0	0	1	1	53	41	153
Venezuela (Bolivarian Republic of)	0	0	27	0	0	4	0	24	21	76

[illegible]

2.5 Near and Middle East	Local			Regional			International			Total
Country	at risk	not at risk	un-known	at risk	not at risk	un-known	at risk	not at risk	un-known	
Saudi Arabia	0	0	9	0	0	2	0	0	3	14
Sudan	0	0	56	0	0	0	0	1	13	70
Syrian Arab Republic	0	0	8	0	0	1	0	3	7	19
United Arab Emirates	0	0	0	0	0	0	0	0	0	0
Yemen	0	0	33	0	0	1	0	2	1	37

2.6 North America	Local			Regional			International			Total
Country	at risk	not at risk	un-known	at risk	not at risk	un-known	at risk	not at risk	un-known	
Canada	0	0	41	2	3	11	1	33	17	108
United States of America	20	7	66	5	3	8	8	116	53	286
American Samoa	0	0	0	0	0	0	0	0	0	0
Guam	0	0	5	0	0	0	0	2	1	8
Johnston Island	0	0	0	0	0	0	0	0	0	0
Midway Island	0	0	0	0	0	0	0	0	0	0
Northern Mariana Islands	0	0	1	0	0	0	0	10	2	13
Puerto Rico	0	0	0	0	0	0	0	1	1	2
United States Virgin Islands	0	0	0	0	0	0	0	1	1	2
Wake Island	0	0	0	0	0	0	0	0	0	0

2.7 Southwest Pacific	Local			Regional			International			Total
Country	at risk	not at risk	un-known	at risk	not at risk	un-known	at risk	not at risk	un-known	
Australia	6	2	118	0	1	3	4	114	109	357
Norfolk Island	0	0	0	0	0	0	0	0	0	0
Cook Islands	0	0	8	0	0	1	0	13	4	26
Fiji	0	0	12	0	0	1	0	11	4	28
Kiribati	0	0	2	0	0	0	0	4	4	10
Marshall Islands	0	0	0	0	0	0	0	0	0	0
Micronesia (Federated States of)	0	0	0	0	0	0	0	0	0	0
Nauru	0	0	0	0	0	0	0	0	0	0
New Zealand	0	0	17	0	1	2	0	5	9	34
Tokelau	0	0	0	0	0	0	0	0	0	0
Niue	0	0	2	0	0	0	0	0	0	2
Palau	0	0	0	0	0	0	0	9	3	12
Samoa	0	0	3	0	0	0	0	19	3	25
Solomon Islands	0	0	8	0	0	0	0	20	8	36
Tonga	0	0	3	0	0	0	0	14	1	18
Tuvalu	0	0	3	0	0	0	0	5	0	8
Vanuatu	0	0	6	0	0	0	0	4	1	11