

Table 1a: Number of species evaluated in relation to the overall number of described species, and number of threatened species by major groups of organisms.

	Estimated Number of described species ¹	Number of species evaluated by 2019 (IUCN Red List version 2019-1)	% of described species evaluated by 2019 (IUCN Red List version 2019-1)	Number of threatened species ² by 2019 (IUCN Red List version 2019-1)	Estimated % threatened species in 2019 (IUCN Red List version 2019-1) ^{2,3,4}		
					Lower estimate (threatened spp. as % of extant evaluated species)	Best estimate (threatened spp. as % of extant data sufficient evaluated species)	Upper estimate (threatened and DD spp. as % of extant evaluated species)
VERTEBRATES							
Mammals ⁵	5,792	5,792	100%	1,223	21%	25%	36%
Birds	11,126	11,126	100%	1,492	14%	14%	14%
Reptiles	10,793	7,199	67%	1,311	Insufficient coverage		
Amphibians	7,992	6,756	85%	2,123	32%	40%	53%
Fishes	34,200	17,228	50%	2,341	Insufficient coverage		
Subtotal	69,903	48,101	69%	8,490			
INVERTEBRATES							
Insects	1,000,000	8,131	0.8%	1,559	Insufficient coverage		
Molluscs	80,325	8,664	11%	2,231	Insufficient coverage		
Crustaceans ⁶	47,000	3,181	7%	733	Insufficient coverage		
Corals	2,175	864	40%	237	Insufficient coverage		
Arachnids	102,248	324	0.32%	182	Insufficient coverage		
Velvet Worms	165	11	7%	9	Insufficient coverage		
Horseshoe Crabs	4	4	100%	2	50%	100%	100%
Others	68,658	839	1.22%	146	Insufficient coverage		
Subtotal	1,300,575	22,018	2%	5,099			
PLANTS⁷							
Mosses ⁸	16,236	102	0.6%	76	Insufficient coverage		
Ferns and Allies ⁹	12,000	578	5%	250	Insufficient coverage		
Gymnosperms	1,052	1,012	96%	401	40%	40%	42%
Flowering Plants	268,000	26,524	10%	12,758	Insufficient coverage		
Green Algae ¹⁰	6,050	13	0.2%	0	Insufficient coverage		
Red Algae ¹⁰	7,104	58	0.8%	9	Insufficient coverage		
Subtotal	310,442	28,287	9%	13,494			
FUNGI & PROTISTS							
Lichens	17,000	23	0.1%	20	Insufficient coverage		
Mushrooms	31,496	68	0.2%	50	Insufficient coverage		
Brown Algae ¹⁰	3,784	15	0.4%	6	Insufficient coverage		
Subtotal	52,280	106	0.2%	76			
TOTAL	1,733,200	98,512	6%	27,159			

NOTES:

- The sources used for the numbers of described species in each taxonomic group are listed below.
- Threatened species are those listed as Critically Endangered (CR), Endangered (EN) or Vulnerable (VU).
- Where <80% of species within a group have been evaluated, figures for % threatened species are not provided because there is insufficient coverage for these groups. It is only possible to provide reliable figures for % threatened species for those groups that are completely or almost completely evaluated (e.g., mammals, birds, amphibians and gymnosperms).
- The percentage of threatened species can be calculated for those groups that are completely or almost completely evaluated (>80% of species evaluated), but the actual number of threatened species is often uncertain because it is not known whether Data Deficient (DD) species are actually threatened or not. Therefore, a range of percentages is provided: **lower estimate** = % threatened extant species (if all DD species are not threatened); **best estimate** = % threatened extant species (if DD species are equally threatened as data sufficient species); **upper estimate** = % threatened extant species (if all DD species are threatened). If a single figure is required for reporting purposes, the best estimate figure should be used.
- The number of described and evaluated mammals excludes domesticated species like sheep (*Ovis aries*), goats (*Capra hircus*), Dromedary (*Camelus dromedarius*), etc.
- Crustaceans include six classes: Malacostraca (crabs, lobsters, shrimp, woodlice, etc.); Branchiopoda (fairy shrimp, clam shrimp, etc.); Cephalocardia (horseshoe shrimp); Ostracoda (seed shrimp); Maxillopoda (barnacles, copepods, etc.); and Remipedia (remipedes)
- The plant numbers **DO NOT** include species from the 1997 IUCN Red List of Threatened Plants (Walter and Gillett 1998) as those assessments used the pre-1994 IUCN system of threat categories. Hence the numbers of threatened plants in Table 1b are much lower when compared to the 1997 results. When reporting on threatened plants, the results from the current web version of The IUCN Red List should be combined with the 1997 Plants Red List. Since there have been many taxonomic changes for plant species since 1997, careful comparison of the current and 1997 species lists will be needed when combining these results to avoid double-counting.
- Mosses include the true mosses (Bryophyta), the hornworts (Anthocerotophyta), and liverworts (Marchantiophyta).
- The ferns and allies include club mosses and spike mosses (Lycopodiopsida), quillworts (Isoetopsida), horsetails (Equisetopsida) and ferns (Marattiopsida, Polypodiopsida and Psilotopsida).
- Seaweeds are included in the green algae (Chlorophyta, Charophyta), red algae (Rhodophyta), and brown algae (Ochrophyta or Heterokontophyta).

Sources for Numbers of Described Species:

Vertebrates

Mammals – Largely from Wilson, D.E. and Reeder, D.M. (eds). 2005. Mammal Species of the World, 3rd Edition. John Hopkins University Press, Baltimore (available at <http://vertebrates.si.edu/msw/mswCFApp/msw/index.cfm>). But there are some deviations, especially in cases where there are alternative taxonomic treatments; in such cases the Global Mammal Assessment coordinating team working with the relevant IUCN SSC Specialist Group advise on which treatment to follow. A number of differences and deviations are also based on new revisions and published papers that have appeared since the accounts in Wilson and Reeder (2005) were published. There are a number of recently described species which are currently under review and hence these are not included in the numbers cited here.

Birds – Handbook of the Birds of the World and BirdLife International. 2018. Handbook of the Birds of the World and BirdLife International digital checklist of the birds of the world. Version 3. Available at: http://datazone.birdlife.org/userfiles/file/Species/Taxonomy/HBW-BirdLife_Checklist_v3_Nov18.zip.

Reptiles – Based on the figures (as of July 2018) provided by *The Reptile Database* compiled by Peter Uetz and Jirí Hošek. Available at: <http://www.reptile-database.org>. Accessed: 15 March 2019.

Amphibians – Frost, D.R. 2019. *Amphibian Species of the World: an Online Reference. Version 6.0 (15 March, 2018)*. Electronic Database accessible at: <http://research.amnh.org/herpetology/amphibia/>. American Museum of Natural History, New York, USA. Accessed: 15 March 2019.

Fishes – Based on Froese, R. and Pauly, D. (eds). 2019. *FishBase*. World Wide Web electronic publication. www.fishbase.org, version (02/2019). Accessed: 15 March 2019.

Invertebrates

Insects – Estimates of the number of insects in the world vary from about 720,000 to more than 1 million, but the most reasonable mid-point figure appears to be about 1 million (see discussion in Chapman, A.D. 2009 . *Numbers of Living Species in Australia and the World, 2nd edition* . Australian Biological Resources Study, Canberra. Available at: <http://www.environment.gov.au/biodiversity/abrs/publications/other/species-numbers/2009/04-02-groups-invertebrates.html#insecta>. Accessed 17 June 2012).

Crustaceans – The estimated number of described species of Crustacea in the world varies from 25,000 to 68,171 but the best estimate is 47,000 (see discussion in Chapman, A.D. 2009 . *Numbers of Living Species in Australia and the World, 2nd edition*. Australian Biological Resources Study, Canberra. Available at: <http://www.environment.gov.au/biodiversity/abrs/publications/other/species-numbers/2009/04-02-groups-invertebrates.html#crustacea>. Accessed 17 June 2012).

Molluscs – MolluscaBase (2019). MolluscaBase. Available at <http://www.molluscabase.org>. Accessed: 15 March 2019.

Corals – Corals fall under the Phylum Cnidaria and are primarily in the Class Anthozoa, although there are some in the Class Hydrozoa. The number of described species reported here are for species typically regarded as 'corals' and are largely based on Spalding *et al.* (2001) (Alcyonarian corals); and Cairns (1999) (Scleractinian corals). The remainder of the cnidarians, anemones, jellyfish, etc., are treated under 'Others'.

Arachnids (spiders, scorpions, etc) – Estimates of the number of described arachnids vary from 60,000 to 102,248, the latter is from Chapman (2009) and is calculated from a breakdown of living species by Order and appears to be the best figure to use (see discussion in Chapman, A.D. 2009 . *Numbers of Living Species in Australia and the World, 2nd edition*. Australian Biological Resources Study, Canberra. Available at: <http://www.environment.gov.au/biodiversity/abrs/publications/other/species-numbers/2009/04-02-groups-invertebrates.html#arachnida>. Accessed 17 June 2012).

Velvet Worms – The number of described species of Onychophora (velvet worms) would appear to be around 165 (for further details see discussion in Chapman, A.D. 2009 . *Numbers of Living Species in Australia and the World, 2nd edition*. Australian Biological Resources Study, Canberra. Available at: <http://www.environment.gov.au/biodiversity/abrs/publications/other/species-numbers/2009/04-02-groups-invertebrates.html#onychophora>. Accessed 17 June 2012).

Horseshoe Crabs – Horseshoe crabs are placed on the Red List under the traditional class "Merostomata" which excludes the fossil sea scorpions; only four species are extant today (see <http://en.wikipedia.org/wiki/Merostomata> for further details).

Others – This is a miscellaneous group of invertebrate species that have been assessed for the IUCN Red List. The total number of described species is based on the estimated totals for the following groups from which the assessed species come: Annelida - segmented worms (16,763), Cnidaria - anemones, jellyfish, etc. but excluding the corals which are treated separately (7,620), Echinodermata - starfish (7,003 species), Myriapoda - centipedes and millipedes (16,072), Nemertina - ribbon worms (1,200), and Platyhelminthes - flat worms (20,000). (For further details on the numbers in these groups see: Chapman, A.D. 2009 . *Numbers of Living Species in Australia and the World, 2nd edition*. Australian Biological Resources Study, Canberra. Available at: <http://www.environment.gov.au/biodiversity/abrs/publications/other/species-numbers/2009/04-02-groups-invertebrates.html>. Accessed 17 June 2012).

Plants

Mosses – Based on information provided by Chapman, A.D. 2009 . *Numbers of Living Species in Australia and the World, 2nd edition*. Australian Biological Resources Study, Canberra. Available at <http://www.environment.gov.au/biodiversity/abrs/publications/other/species-numbers/2009/04-03-groups-plants.html#bryophyta>. Accessed 17 June 2012.

Ferns and allies – Based on information provided by Chapman, A.D. 2009 . *Numbers of Living Species in Australia and the World, 2nd edition*. Australian Biological Resources Study, Canberra. Available at <http://www.environment.gov.au/biodiversity/abrs/publications/other/species-numbers/2009/04-03-groups-plants.html#ferns>. Accessed 17 June 2012.

Gymnosperms – Cycads based on Osborne *et al.* in press (in Haynes 2009); conifers based on Farjon (2010); Ephedraceae and Gnetales based on Govaerts (2010); others based on Mabberley (2008) and Chapman (2009). (For further discussion see Chapman, A.D. 2009 . *Numbers of Living Species in Australia and the World, 2nd edition*. Australian Biological Resources Study, Canberra. Available at <http://www.environment.gov.au/biodiversity/abrs/publications/other/species-numbers/2009/04-03-groups-plants.html#gymnosperms>. Accessed 17 June 2012).

Flowering Plants (Magnoliophyta = Magnoliopsida+Liliopsida) – The number of described species ranges from 223,300 to 315,903. The number used here is based on Chapman (2009). For alternative views on the numbers of seed plant species see Mabberley (1997), Schmid (1998), Govaerts (2001, 2003), Bramwell (2002), Thorne (2002), Scotland and Wortley (2003), Paton *et al.* (2008), Kier *et al.* (2009), and Joppa *et al.* (2010). (For further discussion see Chapman, A.D. 2009 . *Numbers of Living Species in Australia and the World, 2nd edition*. Australian Biological Resources Study, Canberra. Available at <http://www.environment.gov.au/biodiversity/abrs/publications/other/species-numbers/2009/04-03-groups-plants.html#magnoliophyta>. Accessed 17 June 2012).

Fungi & Protists

Lichens - The figure of 10,000 from Groombridge and Jenkins (2002) appears to be too low, so the number described is now based on information provided by Chapman, A.D. 2009 . *Numbers of Living Species in Australia and the World, 2nd edition*. Australian Biological Resources Study, Canberra. Available at: <http://www.environment.gov.au/biodiversity/abrs/publications/other/species-numbers/2009/04-04-groups-fungi.html#lichen>. Accessed 02 September 2010.

Mushrooms - Number of mushroom-forming fungi (=Basidiomycota excluding the 7 lichenised species) based on Kirk *et al.* (2008) (for discussion see Chapman, A.D. 2009 . *Numbers of Living Species in Australia and the World, 2nd edition*. Australian Biological Resources Study, Canberra. Available at: <http://www.environment.gov.au/biodiversity/abrs/publications/other/species-numbers/2009/04-04-groups-fungi.html#fungi>. Accessed 02 September 2010).

Green (Chlorophyta), Red (Rhodophyta) and Brown (Ochrophyta or Heterokontophyta) Algae – From Guiry, M.D. and Guiry, G.M. 2015. *AlgaeBase* . World-wide electronic publication, National University of Ireland, Galway. <http://www.algaebase.org>. Accessed on 12 June 2015.