

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

	Estimated Number of described species ¹	Number of species evaluated by 2021 (IUCN Red List version 2021-1)	% of described species evaluated by 2021 (IUCN Red List version 2021-1)	Number of threatened species ² by 2021 (IUCN Red List version 2021-1)	Estimated % threatened species in 2021 (IUCN Red List version 2021-1) ^{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	6,513	5,940	91%	1,323	23%	26%	37%
Birds	11,158	11,158	100%	1,481	13%	14%	14%
Reptiles	11,341	8,492	75%	1,458	Insufficient coverage		
Amphibians	8,309	7,212	87%	2,442	34%	41%	51%
Fishes	35,797	22,005	61%	3,210	Insufficient coverage		
Subtotal	73,118	54,807	75%	9,914			
INVERTEBRATES							
Insects	1,053,578	10,865	1.0%	1,926	Insufficient coverage		
Molluscs	81,719	8,881	11%	2,305	Insufficient coverage		
Crustaceans ⁶	80,122	3,189	4%	743	Insufficient coverage		
Corals	2,175	864	40%	237	Insufficient coverage		
Arachnids	110,615	393	0.36%	218	Insufficient coverage		
Velvet Worms	227	11	5%	9	Insufficient coverage		
Horseshoe Crabs	4	4	100%	2	50%	100%	100%
Others	151,801	844	0.56%	148	Insufficient coverage		
Subtotal	1,480,241	25,051	2%	5,588			
PLANTS⁷							
Mosses ⁸	21,925	282	1.3%	165	Insufficient coverage		
Ferns and Allies ⁹	11,800	678	6%	266	Insufficient coverage		
Gymnosperms	1,113	1,016	91%	403	40%	41%	42%
Flowering Plants	369,000	52,077	14%	20,883	Insufficient coverage		
Green Algae ¹⁰	11,616	16	0.1%	0	Insufficient coverage		
Red Algae ¹⁰	7,291	58	0.8%	9	Insufficient coverage		
Subtotal	422,745	54,127	13%	21,726			
FUNGI & PROTISTS¹¹							
Lichens	17,000	57	0.3%	50	Insufficient coverage		
Mushrooms, etc.	120,000	368	0.3%	196	Insufficient coverage		
Brown Algae ¹⁰	4,317	15	0.3%	6	Insufficient coverage		
Subtotal	141,317	440	0.3%	252			
TOTAL	2,117,421	134,425	6%	37,480			

NOTES:

- The numbers of described species in Table 1a should be used with caution as these are not always be up to date for all taxonomic groups. The sources used for the figures currently shown in the table 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: Branchiopoda (fairy shrimp, clam shrimp, etc.); Cephalocardia (horseshoe shrimp); Ostracoda (seed shrimp); Malacostraca (crabs, lobsters, shrimp, woodlice, etc.); 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).
- Many of the described species in these groups are not eligible for assessment on the IUCN Red List as they are considered micro-organisms.

Sources for Numbers of Described Species:

Vertebrates

Mammals – Mammal Diversity Database. 2020. www.mammaldiversity.org. American Society of Mammalogists. Accessed 04 March 2021. The ASM Biodiversity Committee stewards the Mammal Diversity Database, an updatable and online database of mammal taxonomic and biodiversity information. Partly based on Wilson, D.E. and Reeder, D.M. (eds). 2005. *Mammal Species of the World*, 3rd Edition. John Hopkins University Press, Baltimore (available at <https://www.departments.bucknell.edu/biology/resources/msw3/>), updated using the IUCN Red List and other literature. The IUCN Red List deviates from Wilson and Reeder (2005), 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. 2020. Handbook of the Birds of the World and BirdLife International digital checklist of the birds of the world. Version 5. Available at: http://datazone.birdlife.org/userfiles/file/Species/Taxonomy/HBW-BirdLife_Checklist_v5_Dec20.zip. Accessed: 04 March 2021

Reptiles – Based on the figures (as of 17 August 2020) provided by The Reptile Database compiled by Peter Uetz and Jiri Hošek. Available at: <http://www.reptile-database.org>. Accessed: 04 March 2021. For current total number of species on this website, see <http://reptile-database.reptarium.cz/>

Amphibians – Frost, D.R. 2021. *Amphibian Species of the World: an Online Reference*. Version 6.1 (10 March 2021). Electronic Database accessible at: <https://amphibiansoftheworld.amnh.org/index.php>. American Museum of Natural History, New York, USA. doi.org/10.5531/db.vz.0001.

Fishes – Based on Frick, R. Eschmeyer, W.N. and Van der Lan, R. (eds). 2021. *Eschmeyer's Catalog of Fishes: genera, species, references* (<http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>). Electronic version accessed: 04 March 2021.

Invertebrates

Insects – Roskov Y., Ower G., Orrell T., Nicolson D., Bailly N., Kirk P.M., Bourgoin T., DeWalt R.E., Decock W., Nieukerken E. van, Zarucchi J., Penev L., eds. (2019). *Species 2000 & ITIS Catalogue of Life, 2019 Annual Checklist*. Digital resource at <http://www.catalogueoflife.org/annual-checklist/2019/info/totals>. Species 2000: Naturalis, Leiden, the Netherlands. ISSN 2405-884X. Accessed 04 March 2021.

Crustaceans – Roskov Y., Ower G., Orrell T., Nicolson D., Bailly N., Kirk P.M., Bourgoin T., DeWalt R.E., Decock W., Nieukerken E. van, Zarucchi J., Penev L., eds. (2019). *Species 2000 & ITIS Catalogue of Life, 2019 Annual Checklist*. Digital resource at www.catalogueoflife.org/annual-checklist/2019. Species 2000: Naturalis, Leiden, the Netherlands. ISSN 2405-884X. Accessed 24 November 2021.

Molluscs – MolluscaBase (2021). MolluscaBase. Available at <http://www.molluscabase.org>. Accessed: 04 March 2021.

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) – Roskov Y., Ower G., Orrell T., Nicolson D., Bailly N., Kirk P.M., Bourgoin T., DeWalt R.E., Decock W., Nieukerken E. van, Zarucchi J., Penev L., eds. (2019). *Species 2000 & ITIS Catalogue of Life, 2019 Annual Checklist*. Digital resource at www.catalogueoflife.org/annual-checklist/2019. Species 2000: Naturalis, Leiden, the Netherlands. ISSN 2405-884X. Accessed 04 March 2021.

Velvet Worms (Onychophora) — Oliveira, I.S., Hering, L. and Mayer, G. (2006-2021). *The Onychophora Website*. Digital resource at <http://www.onychophora.com/index.htm>. Accessed 04 March 2021. For number of described species see <http://www.onychophora.com/list.htm>.

Horseshoe Crabs (Merostomata) — Class Merostomata excludes the fossil sea scorpions; only four species are extant today: Roskov Y., Ower G., Orrell T., Nicolson D., Bailly N., Kirk P.M., Bourgoin T., DeWalt R.E., Decock W., Nieukerken E. van, Zarucchi J., Penev L., eds. (2019). *Species 2000 & ITIS Catalogue of Life, 2019 Annual Checklist*. Digital resource at www.catalogueoflife.org/annual-checklist/2019. Species 2000: Naturalis, Leiden, the Netherlands. ISSN 2405-884X. Accessed 04 March 2021.

Others – "Others" includes all of the invertebrate groups listed in Catalog of Life that are not included in the groups listed above. Roskov Y., Ower G., Orrell T., Nicolson D., Bailly N., Kirk P.M., Bourgoin T., DeWalt R.E., Decock W., Nieukerken E. van, Zarucchi J., Penev L., eds. (2019). *Species 2000 & ITIS Catalogue of Life, 2019 Annual Checklist*. Digital resource at www.catalogueoflife.org/annual-checklist/2019. Species 2000: Naturalis, Leiden, the Netherlands. ISSN 2405-884X. Accessed 24 November 2021).

Plants

Mosses – Christenhusz, M.J.M. and Byng, J.W. 2016. The number of known plant species in the world and its annual increase. *Phytotaxa*. 261(3): 201-217. <http://dx.doi.org/10.11646/phytotaxa.261.3.1>

Ferns and allies – State of the World's Plants 2017: https://stateoftheworldsplants.org/2017/report/SOTWP_2017.pdf

Gymnosperms – Christenhusz, M.J.M. *et al.* (2011). A new classification and linear sequence of extant gymnosperms. *Phytotaxa*. 19: 55–70 (cited in State of the World's Plants 2017: https://stateoftheworldsplants.org/2017/report/SOTWP_2017.pdf).

Flowering Plants (Magnoliophyta = Magnoliopsida+Liliopsida) – State of the World's Plants 2017: https://stateoftheworldsplants.org/2017/report/SOTWP_2017.pdf.

Fungi & Protists

Lichens - The estimated total number of lichen species currently ranges between 17,000 (Chapman 2009) and 28,000 (Thell *et al.* 2012). The figure presented in Table 1a will be updated as soon as a more accurate figure can be confirmed.

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.

Thell, A., Crespo, A. Divakar, P.K., Kärnefelt, I., Leavitt, S.D., Lumbsch, H.T. and Seaward, M.R.D. 2012. A review of the lichen family Parmeliaceae - history, phylogeny and current taxonomy. *Nordic Journal of Botany* 30(6): 641-664

Mushrooms, brackets, rusts, smuts, jelly fungi, etc. - Ascomycota and Basidiomycota (excluding the lichenised species).

Kirk P.M. (2019). *Species Fungorum* (version Oct 2017). In: *Species 2000 & ITIS Catalogue of Life, 2019 Annual Checklist* (Roskov Y., Ower G., Orrell T., Nicolson D., Bailly N., Kirk P.M., Bourgoin T., DeWalt R.E., Decock W., Nieukerken E. van, Zarucchi J., Penev L., eds). Digital resource at www.catalogueoflife.org/annual-checklist/2019. Species 2000: Naturalis, Leiden, the Netherlands. ISSN 2405-884X. Accessed 24 November 2021

Green (Charophyta, Chlorophyta), Red (Rhodophyta) and Brown (Ochrophyta) Algae – From Guiry, M.D. and Guiry, G.M. 2021. *AlgaeBase*. World-wide electronic publication, National University of Ireland, Galway. <http://www.algaebase.org>. Accessed on 04 March 2021. For taxonomy search, see <https://www.algaebase.org/browse/taxonomy/>