Western Australian Cryptogam Statistics

With the increasing focus on cryptogam biodiversity, we consider it useful to present a baseline against which future improvements in our knowledge can be measured. These figures have a specific origin commensurate with our definition of adequate documentation and verification of the source and application of the taxon name. That is, the taxon name has been verified and entered in to the Census of Western Australian Plants database, the name applied to specimens in the Western Australian Herbarium collection and then captured in the Herbarium's specimen database.

Current Statistics - Cryptogams - June 2012

Analysis of the size of major cryptogamic groups for various categories of name

Category	Fungi	Lichen	Myxomycetes	Algae	Bryophytes	Total
Total names [A]	173	827	146	1117	201	2464
Non-current names [B]	59	113	0	29	10	211
Current names [C]	114	714	146	1088	191	2253
Species with infraspecies [K]	1	24	0	36	23	84
Current taxa [D]	113	690	146	1052	168	2169
Current species [E]	113	680	146	1042	162	2143
Manuscript names [F]	0	0	0	0	0	0
Phrase names [G]	0	0	0	0	0	0
Published species [H]	113	680	146	1042	162	2143
Published alien species [I]	2	0	0	4	1	7
Published native species [J]	111	680	146	1038	161	2136
Estimated species number [L]	140000	700	200	9000	400	150300
See notes	*1*	*2*	*3*	*4*	*5*	

Data sourced on 8th June 2012. Compare with the 2011 figures.

A - total number of cryptogam names in the database

B - number of synonymous, excluded or misapplied names (ie. names no longer in current use, at least in WA)

C - number of currently accepted names (ie. includes the species-level name when infra-species exist)

D - number of currently accepted taxa (ie. excludes the species-level name when infra-species of that taxon exist)

E - number of currently accepted species (ie. only the species-level names, excludes any infra-species names)

F - number of proposed but unpublished species (ie. informal names proposed on specimens or in manuscripts)

G - number of assigned but unpublished species (ie. informal names assigned to specimens for further analysis)

H - number of formally published species names (ie. formally published names described in botanical literature)

I - number of published naturalised alien species (ie. formally published names of weed species occurring in WA)

J - number of published species native to Western Australia (ie. formally published names of native WA species)

K - number of species with subordinate current taxa (subspecies, varieties and formas)

L - estimated total number of species expected to occur in Western Australia (see notes 1-5).

2012 Highlights

For the non-vascular (cryptogamic) plants, a brief comparison of the 2012 with the 2011 data shows:

- an additional 11 cryptogam names entered into the Census of Western Australian Plants database (of which 5 were synonyms);
- the addition of 7 fungi and 4 slimemoulds to the list of current cryptogam taxa listed for the State.

Notes

Only for the lichens, myxomycetes and for the mosses (bryophyta) of the Perth region, could this information be considered adequate or representative of the diversity of the group. For the remaining groups, specialists have provided an estimate of the actual number of species that could be found to occur in WA once adequate field and taxonomic studies have been made.

[1] Fungi (both macro- and micro-fungi): Pascoe (1991) suggests the ratio of plants to fungi is about 1:10 in Australia, ie. 25,000 plants (native and exotic), and 250,000 fungi. So, if WA has 14,000 vascular plants, then the estimated number of fungi in WA would be 140,000 (Neale Bougher, pers. comm.).

[2] Lichen (ie. lichenised fungi): Ray Cranfield (pers. comm.) suggests that even with the recent publication of a State census of lichens (Cranfield, 2004), there are likely to be in the order of another 70 taxa likely to be discovered in coming years.

[3] Myxomycetes (slime moulds): After the recent publication of a census of slime moulds (Knight and Brims, 2010) the estimated maximum number of taxa occurring in WA may be put at 200 (Karina Knight, pers. comm.)

[4] Algae (including marine macro- and micro-algae, dinoflagellates, diatoms and freshwater macro-algae). The estimated number of macroalgae occurring in WA is 1,400, given that much of the northwest remains to be explored and we are still uncovering new records/species in all parts of WA (John Huisman, pers. comm.). Huisman goes on to say that "my earlier compilation of diatom/dinoflagellate and other microalgal records for WA included around 600 diatoms and 150 dinoflagellates (the other groups were negligible); marine and freshwater were included. The multiplication factor used by Watson *et al.* (1995) to estimate the world's algal species was x10, so WA's microalgae will probably add up to approximately 7,500 spp."
If we also allow around 100 species of freshwater macroalgae, then the putative number of algae will total some 9,000 taxa.

[5] Bryophytes refers here to the paraphyletic assemblage of mosses, liverworts and hornworts. Streimann & Klazenga (2002) list 212 moss taxa occurring in WA, and M^{c}Carthy (2003) lists 90 taxa of liverworts and hornworts. As these figures are comparable in size to those listed for the Australian Capital Territory (a region one-thousandth the area), we might expect there are a number of bryophytes yet to discover. Conservatively, the estimated number of taxa occurring in WA could be put at 400 (Ray Cranfield, pers. comm.)

References

Biggs, L. and Chappill, J., (2008). An annotated census of the mosses of the Perth Region, Western Australia. *Nuytsia* 18 (1) : 1-30.

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Knight, K.J. and Brims M.H. (2010). Myxomycota census of Western Australia. *Nuytsia* 20: 283-307.

McCarthy, P.M. (2003). *Catalogue of Australian liverworts and hornworts.* Flora of Australia supplementary series. Australian Biological Resources Study, Canberra.

Pascoe, I.G. (1991). History of systematic mycology in Australia. *In: History of Systematic Botany in Australasia*. Ed by: P. Short. Australian Systematic Botany Society Inc. pp. 259-264.

Streimann, H. and Klazenga, N. (2002). *Catalogue of Australian mosses.* Flora of Australia supplementary series. Australian Biological Resources Study, Canberra.

Watson, R.T., Heywood, V.H., Baste, I., Dias, B., Gamez, R., Janetos, T., Reid, W. & Ruark, G. (1995). *Global Biodiversity Assessment. Summary for Policy-Makers.* Cambridge University Press, Cambridge, New York, Melbourne. 46 pp.

Compiled by Alex Chapman; last updated on 8 June 2012.

Related content

- 2012 Highlights
- Current Statistics - Vascular Plants
- A summary of Floristics and Endemism in WA

Did you notice?

There is, in general, a diminishing relationship between figures in subsequent rows of the table, as figures in each category are subtracted from the ones above. Eg.
in each column: A – B = C

Having trouble deciding ...

... the most appropriate data for your purpose? The highlighted rows are the recommended figures if you need:

- to cite the number of known entities in WA as listed on the State's Census [D], or
- a conservative estimate of the number of well-documented species [H].