Western Australian Cryptogam Statistics

For the second year we present a preliminary table for the cryptogams as tracked in the Census of Western Australian Plants and related databases. The total number of vascular and cryptogamic organisms now tracked by our information systems totals 15898 taxa.
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Preliminary Statistics - June 2007

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.

Note that only for the lichens 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.

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

Category	Fungi	Lichen	Algae	Bryophytes	Total
Total names [A]	7	759	1002	14	1782
Non-current names [B]	0	74	9	4	87
Current names [C]	7	685	993	10	1695
Current taxa [D]	7	665	957	8	1637
Current species [E]	7	653	949	8	1617
Manuscript names [F]	0	0	1	0	1
Phrase names [G]	0	1	0	0	1
Published species [H]	7	652	948	8	1615
Published alien species [I]	0	0	0	0	0
Published native species [J]	7	652	948	8	1615
Estimated species number [K]	*140,000	**700	***9,000	****400	150,100

Data sourced on 1st June 2007. Compare with the 2008 figures or with the 2006 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F - number of proposed but unpublished species (ie.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 - estimated total number of species expected to occur in Western Australia.

Notes

* 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 (N. Bougher, pers. comm.).

** Lichen (ie. lichenised fungi): 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.

*** 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 (J. 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.

**** 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 (R. Cranfield, pers. comm.)

References

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