Formulaic Unpublished Names: The need for a TDWG standard and for the inclusion of such names in apps such as iNaturalist

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Abstract

Names are essential for communication. In biodiversity we have a nomenclature system that has stood the test of time (around 270 years) and, despite some shortcomings, it works. However, the world has changed. Extinction rates have increased rapidly in recent times and are rising at ever increasing rates due to climate change and human neglect. As a result, we need to do everything we can to protect the species that remain and, to do that, we need to be able to communicate about those species. The publishing process is slow, and there is a dearth of taxonomists, so the formal publication for many of these species, especially in the tropics and the New World, cannot keep up with the ever-increasing known unpublished species. It is estimated (Chapman 2009) that only about 16% of the world's species have been described. In plants that figure is around 65% described, with 35% still undescribed. Many of these are known, and many are threatened, but unless we give them names, we cannot adequately communicate about them, exchange data on them, or add them into conservation legislation. This includes being able to identify photos, etc. in citizen science apps such as iNaturalist, which can be important in determining ranges, identifying new taxa, and for taxonomists and other researchers.

In the 1980s, Australia developed a formulaic naming system for undescribed plant species (Chapman 2005). The formulaic name follows the format: "<Genus> sp. <colloquial name, location or description> (<Voucher>)" e.g., "*Prostanthera* sp. Somersbey (B.J.Conn 4024)". This was universally adopted in Australia in the 1990s, and allowed, from 1999, the inclusion of these undescribed taxa in the legislated National and State threatened species lists. As of May 2022, there were 41 such taxa listed in the Australian Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Such formulaic names can be synonymised as new names are formally described. A more detailed discussion of the formulaic method was given on pages 20-21 in Chapman (2005).

Some have said that this is a trivial issue, but it is not trivial, and we will give evidence of this by looking at just one small part of the world – Western Australia – where there are

currently 987 currently accepted undescribed taxa out of an estimated flora of about 13,000 that use this formulaic naming system (https://florabase.dpaw.wa.gov.au/). That is around 7.5% of all plant species in the state. Of these 987 taxa, over 50% are listed as Conservation Priority taxa (calculated from the florabase reference).

This is not just an Australian problem, or just a plant problem, and thus we need such a system formalised into a TDWG standard. This would allow for consistency across the globe and across life kingdoms and allow for the transfer of data through data aggregators such as the Global Biodiversity Information Facility (GBIF). We also need citizen science apps such as iNaturalist to allow for the inclusion of such names in their taxonomies, otherwise we lose a lot of important information on some of the most valuable and threatened taxa in the world.

While looking at the benefits, we must also look at some of the drawbacks e.g., physical piracy of rare taxa, and taxonomic piracy. It has been suggested that in some taxonomic groups, tying a formula name to a voucher, and especially where there is a link to a photo on iNaturalist, could encourage taxon pirates to describe and publish the taxa as new taxa in self-published journals without having examined any material. These issues need to be discussed, but we believe they are not reasons to deny support of the concept of formulaic names, even if different formats are needed for different taxonomic groups.

Keywords

citizen science, taxonomy, species names, data aggregator, threatened species, Australian biodiversity, conservation legislation

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Presented at

TDWG 2022

Conflicts of interest

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