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A potential intellectual property issue with the way in which some nomenclature code decisions are made

Stephen J. Maxwell[1] | Michael Underdown[2]

[1]College of Science and Engineering, James Cook University, Cairns, Australia

[2]Cairns Institute, James Cook University, Cairns, Australia

Correspondence
Michael Underdown, Cairns Institute, James Cook University, Cairns, QLD 4879, Australia.
Email: michael.underdown@jcu.edu.au

Abstract

This article examines the legal status of nomenclature codes and their application to denomination in certain forms of intellectual property, in particular plant breeder's rights and patents for micro-organisms. Its objective is to show how rigidity and the absence of appeals against nomenclature decisions can have adverse effects on the rights and even earning potential of applicants.

KEYWORDS
denomination, intellectual property, micro-organisms, nomenclature codes, novelty, patent, plant variety rights, taxon

1 | INTRODUCTION

We argue that rigidity and inconsistency in the application of nomenclature codes can have unintended legal consequences.

Nomenclature codes have developed as a means of naming biological taxa. Although they differ in how they operate, they all have a common goal, namely, to facilitate communication between scientists through consensus on names. It has been said that 'international codes of nomenclature (have) no legal status and (are) dependent on the voluntary acceptance of (their rules by authors, editors, and other users of names that (they govern)'.[1] This would be, no doubt, a commonly accepted description of the role of nomenclature codes but it is not entirely accurate anymore.

While it is desirable that these codes are stable, they should not be applied dogmatically but equitably in accordance with transparent processes that allow applicants to appeal decisions on scientific grounds.

The procedures followed by the governing bodies of some of the nomenclature codes in respect of accepting or rejecting proposed names can be opaque and unappealable.

2 | LEGAL STATUS

While the nomenclature codes themselves in their statutes or rules do not claim legal status, there are instances where they are accorded legal status either by legislation or by convention. In these circumstances, decisions about approval or disapproval of names and the process followed in making such decisions take on extra significance. Therefore, it is important that code determinations are less arbitrary, the process is less opaque and the decisions are reviewable.

We refer primarily to Australian legislation, but since intellectual property laws are by their very nature universal in their approach, similar provisions may exist in other jurisdictions, although we have not undertaken an exhaustive search. Alternatively, nomenclature codes may be followed indirectly in intellectual property legislation.

Within Australia, legal status may be conferred on a nomenclature code either directly, as in the case of the *Plant Breeder's Rights Act 1994* (Cth), Section 27(6) of which provides that 'a name (including a synonym), in respect of a plant variety must comply with the International Code of Botanical Nomenclature and subsidiary codes',[2] or indirectly, as for example, in the legislative requirements for seeking the grant of a patent for micro-organisms. Likewise, in the United States, the revisions to the Federal Seed Act Regulations use the names assigned to plants in the International Code of Nomenclature for Cultivated Plants (ICNCP).[3] This is the nomenclature code applicable to agriculture, forestry and horticulture and applies to plants (cultigens) 'whose origin or selection is primarily due to intentional human activity'.[4]

In other words, naming in compliance with a code will be mandatory in some instances but discretionary in others, although most applicants are likely to choose to follow an established standard. By way of example, Rule 7 of the New Zealand Plant Variety Rights Regulations 1988 specifies that proposed denominations 'must *conform with international usage* relating to the names of cultivated plants' (emphasis added).

A case in the Netherlands College van Beroep voor het bedrijfsleven (Administrative Court for Trade and Industry) in 2018 recognised for the first time the legal status of plant varieties registered by the Koninklijke Algemene Vereeniging voor Bloembollencultuur (KAVB) (Royal General Bulb Growers' Association), which is an accredited International Cultivar Registration Authority associated with the ICNCP.[5] Although the KAVB register has no statutory status, several Dutch legal bodies recognise its denominations.

In the case of micro-organisms, Section 6 of the *Patents Act 1990* (Cth) provides that they should be deposited with a prescribed depository institution. In Australia, there are two such depositories under the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure 1977. The *Patents Act 1990* does not specify how the micro-organism is to be named, Section 41(1A) only stating that it meets the specification requirements if it is deposited in accordance with the legislation. In Australia, the taxonomic description of the micro-organism should be included in the patent application, along with other characteristics, although different approaches apply to the description of products of micro-organisms, processes involving micro-organisms and transgenic plants or animals, but not for genes isolated from organisms, which cannot be patented.

The statement required to be completed by a depositor upon depositing a micro-organism in a depository institution in accordance with Rule 6.1(a) of the Budapest Treaty calls for an identification reference. This '*may* be a name but equally it may be merely a strain designation or even just a laboratory code number'.[6] However, Rule 6.1(b) 'strongly recommends' that a 'scientific description and/or proposed taxonomic designation' also be included and there is provision in Box VII for this information to be included in the statement. It is probably inevitable that depositors following the exhortatory wording in Rule 6.1(b) will have recourse to the International Code of Nomenclature of Prokaryotes (ICNP) to comply.

A further example of the conferment of indirect legal status is found in the National Association of Testing Authorities, Australia publication *General Accreditation Criteria Reference Material Producers*, which recommends how ISO 17034:2016 should be interpreted and applied. ISO 17034:2016 Clause 6.3.2 requires the scientific name and taxonomic identification (if known) to be recorded by the relevant facility. Reference culture producers are also referred, for example, to the World Federation for Culture Collection Guidelines. Although the Guidelines, at Para 8.2, only state that the identification of a culture should 'agree with published descriptions of the species',[7] the principal nomenclature codes are also listed. The implication is that the relevant codes will be used by producers.

It is in the nature of codes, not just nomenclature codes but also legal codes, pharmaceutical codes and the International Convention on the Harmonized Commodity Description and Coding System of the World Customs Organization to mention only a few, that they are a systematic collection of rules at a point in time. It is precisely this aspect that has made the nomenclature codes so effective, but even codes need to adapt over time, albeit conservatively, as science, society, law and so forth change. Even more do they need to adapt if they prove a deterrent to scientific progress or if they are detrimental to other advances, for example, to intellectual property applications, which in some cases (e.g., new wheat or rice varieties) can have enormous financial implications.

3 | DENOMINATION

All forms of intellectual property require some specific designation or element of originality. In the case of patents, this involves the establishment of both 'novelty' and an 'inventive step' (also referred to as 'nonobviousness').[8] A good example of how this plays out in practice was provided by the judgement in CSIRO's case against Buffalo Technology Inc for infringement of the WiFi patent that it had been granted in 1996 and which involved using orthogonal frequency division multiplexing to overcome the multipath problem. The defendant argued that the solution to the multipath problem was obvious. However, the Court held otherwise and granted CSIRO a permanent injunction.[9]

When the Australian Law Reform Commission examined the issue of 'novelty' in its enquiry into gene patenting, a topic that has also been considered in the United Kingdom and the United States, a submission by the Royal College of Pathologists of Australasia argued that 'natural materials are only novel in the sense that they have not previously been discovered by humans' while other submissions argued the opposite, namely that 'genetic materials do not exist in nature in an isolated or purified form; and human intervention is required to achieve this'.[10]

The focus in the protection of new varieties of plants (plant variety rights) is on 'denomination' or the accurate and unique description of the plant variety that is sought to be protected. Article 5 of the International Convention for the Protection of New Varieties of Plants (1961) as revised states that the criteria required to be met before a breeder's right to a new species can be granted are that it be 'new, distinct, uniform and stable'. Article 6 expands on the novelty (or 'newness') requirement, while Articles 7–9 explain the three other criteria. Explanatory Notes to the Convention have been published by the International Union for the Protection of New Varieties of Plants (UPOV) defining what is meant by 'variety'—'plant grouping within a single botanical taxon on the lowest known rank'[11]—and 'denomination'—'generic designation—(enabling) the variety to be identified'.[12] The same definition of 'variety' is found in the United Kingdom *Plant Varieties Act 1997*.[13]

None of this, of course, specifies that a particular nomenclature code must be used to name a plant variety. In fact, the principal nomenclature codes for plants—the International Code of Nomenclature for algae, fungi, and plants and the International Code of Nomenclature for Cultivated Plants—as well as the UPOV Convention, use a binomial system of naming that indicates the genus and species, rather than the variety, which is of a lower taxonomic rank.[14]

As the *Evaluation of the Community Plant Variety Rights Acquis—Final Report* points out, 'plant groupings of a higher or a lower taxonomic level than a variety can be protected by a patent, if they have incorporated the patented genetic element'.[15]

4 | EXAMPLES

We provide two examples of how nomenclature rules have been arbitrarily applied in respect of Mollusca by the World Register of Marine Species (WoRMS), a database that is generally considered to be taxonomically authoritative.

In a paleontological paper, Klaus Bandel described but did not provide a description for the type genera, only of the type species,[16] a violation of the International Code on Zoological Nomenclature (ICZN), Article 13.1.1 of which states 'To be available, every new name published after 1930 must satisfy the provisions of Article 11 and must be accompanied by a description or definition that states in words characters that are purported to differentiate the taxon'.[17] The importance of Article 13 is to avoid the restrictive nature of a type-based description, which by implication makes the taxa monotypic, thus excluding all other taxa. Despite this, Bandel's paper is widely accepted, notwithstanding its clear technical invalidity, including being accepted by WoRMS.

The other example involved the use by one of the authors (SJM) of a prefix attached to an existing genus to create the names of a higher taxon at a lower rank than superfamily, with a prefix not dealt with within the ICZN.[18,19] Maxwell argued that the use of prefixes has a valid role in taxonomy to demarcate the description of a crown clade. The inclusion in ICZN Article 11.7.1.1 of the term 'stem' invites prefixes: 'use of the stem alone in forming the name is accepted as evidence that the author used the generic name as valid in the new family-group taxon unless there is evidence to the contrary'.[20] The ICZN does not preclude the use of nontaxon-specific prefixes in any article, and any rulings in WoRMS are purely personal overreach, and more importantly, seek to restrict the ability of nomenclature to reflect evolutionary relationships through restricting the ability to identify crown clades.

5 | CONCLUSION

Intellectual property applications, especially those forms relating to plant varieties, patents for micro-organisms and pharmaceutical patents, require precise taxonomic or other description. To the extent that nomenclature codes are employed, either due to legislation or through custom, to provide the required degree of uniqueness they need to be less rigidly conservative and also appealable on scientific grounds. A subsidiary concern is that the intellectual property rights—and in some cases, considerable earning potential—of scientists and research bodies can sometimes be denied through arbitrary decisions without recourse to appeal.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article.

ORCID

Stephen J. Maxwell http://orcid.org/0000-0002-4328-6171
Michael Underdown http://orcid.org/0000-0002-8178-8738

ENDNOTES

[1] Richard W. Jordan, 'Nannoplankton Taxonomy and the International Code of Nomenclature for Algae, Fungi, and Plants (ICN)' (2015) 35(2) JNR 141.

[2] The International Code of Botanical Nomenclature has been replaced by the International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code).

[3] Department of Agriculture, Agricultural Marketing Service, 7 CFR Parts 201 and 202 [Doc. No. AMS-ST-19-0039] RIN 0851-AD91, Revisions to the Federal Seed Act Regulations, Federal Register 85, 130 (7 July 2020), 40571.

[4] International Code of Nomenclature for Cultivated Plants, 8th ed (Leuven, 2016) [Scripta Horticulturae No 10], Pre. 7.

[5] *Floralí Licensing B.V. te Zoetermeer v de Raad voor Plantenrassen* ECLI: NL: CBB: 2018: 562.

[6] WIPO, *Guide to the Deposit of Microorganisms under the Budapest Treaty* (as of 31 January 2020) <https://www.wipo.int/treaties/en/registration/budapest/guide/>. Part 1: General Requirements for Deposit and Furnishing of Samples, para 14.

[7] WFCC, *Guidelines for the Establishment and Operation of Collections of Cultures of Microorganisms*, 3rd ed. 2010.

[8] See s 18(1)(b)(i) *Patents Act 1990* (Cth).

[9] *Csiro* [sic] *v Buffalo Technology Inc* 492 F. Supp. 2d 600 (E.D. Tex. 2007).

[10] Australian Law Reform Commission, *Genes and Ingenuity. Gene Patenting and Human Health* (Canberra 2004) (Report 99), 6.65 and 6.66, 133-134.

[11] UPOV, *Explanatory Notes on the Definition of Variety under the 1991 Act of the UPOV Convention* (Geneva 2010) 4.

[12] UPOV, *Explanatory Notes on Variety Denominations under the UPOV Convention* (Geneva 2021) 4.

[13] *Plant Varieties Act 1997* (UK) at s 1(3).

[14] See CPVO Notes for Applicants, Point 03.

[15] GHK, *Evaluation of the Community Plant Variety Right Acquis—Final Report* (London 2011) 114.

[16] Klaus Bandel, 'Paläontologie, Stratigraphie, Fazies' (2007) C524 FF 97.

[17] International Commission on Zoological Nomenclature, *International Code of Zoological Nomenclature* (4th ed., London 1999).

[18] Stephen J. Maxwell, 'Recognising and Defining a New Crown Clade Within Stromboidea Rafinesque, 1815 (Mollusca: Gastropoda)' (2019) 867 ZooKeys 1.

[19] Stephen J. Maxwell, 'Recognising and Defining New Crown Clades in Stromboidea Rafinesque, 1815 (Mollusca: Gastropoda)' (2021) 25 BRFEMS 9.

[20] Stephen J. Maxwell and others, 'Towards Resolving the American and West African Strombidae (Mollusca: Gastropoda: Neostromboidae) Using Integrated Taxonomy' (2020) 52(1) Festivus 3.

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