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18 March 2019

English

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**United Nations Group of Experts On  
Geographical Names  
2019 session**

New York, 29 April – 3 May 2019

**Item 15 of the agenda \***

**Toponymic data files and gazetteers (data processing and tools, database management, data dissemination: products and services) (Working Group on Toponymic Data Files and Gazetteers)**

## **Report of New Zealand – on the evolution of the New Zealand gazetteer**

Submitted by New Zealand\*\*

### Summary:

The full report contains information on the evolution of the New Zealand gazetteer including enhancements made in 2018 and updates planned for 2019. The 2018 enhancements focused on user experience, extending coverage to include the naming jurisdiction of the New Zealand Geographic Board Ngā Pou Taunaha o Aotearoa, and providing better spatial context. The Geographic Board has moved the online gazetteer to a modular platform (Leaflet), thus providing flexibility to continue updating the gazetteer as technology changes. In the report, the author discusses goals, challenges and successes in meeting a legal requirement to produce a publicly available record of official geographical names.

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\* GEGN.2/2019/37/CRP.37

\*\*Prepared by Wendy Shaw, Secretary, New Zealand Geographic Board Ngā Pou Taunaha o Aotearoa

## Background

The New Zealand [Gazetteer](#) is our country's authoritative record of geographic names. For over 70 years a notice published in the *New Zealand Gazette* has provided 'conclusive evidence' of official geographic names, which are then added to the [Gazetteer](#). However, the way official (and unofficial) geographic names in the [Gazetteer](#) are recorded, distributed, accessed and used, has changed significantly, as has the form of the Gazetteer. The NZGB is required by law to maintain and update the [Gazetteer](#) with its decisions on geographic naming.

## Benefits of geographic names recalled

Geographic names are important with long term benefits that:

- provide practical, unambiguous, fundamental and unique location identification and navigation across the physical landscape – they identify where we are as we go about our everyday lives – they are a component of our infrastructure, form part of an address, and importantly are essential for emergency response.
- recognise heritage and culture, giving us a sense of place and ensure important names are preserved or restored.
- provide a reliable and authoritative source for standardisation, consistency and accuracy.

## New Zealand Geographic Board – statutory requirements

In 1924 the Honorary Geographic Board of New Zealand was formed to advise on place and feature names in New Zealand, but its decisions could not be enforced as no legislation existed. Because of the lack of formal uptake of the Honorary Board's decisions, the NZGB Act 1946 established the New Zealand Geographic Board and gave it powers to make geographic names official, and to enforce compliance with official geographic names.

62 years later, the NZGB Act 2008 modernised the legislation, establishing new functions and roles for the NZGB. The 2008 Act gave legal effect to the NZGB's long-time role in Antarctic naming and set out new jurisdiction for undersea feature names to the edge of New Zealand's continental shelf. A new concurrence role with the Department of Conservation<sup>1</sup> naming Crown protected areas<sup>2</sup> was established and the 2008 Act specifically recognises and respects the Treaty of Waitangi (Te Tiriti o Waitangi)<sup>3</sup>.

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<sup>1</sup> The Department of Conservation is charged with conserving New Zealand's natural and historic heritage

<sup>2</sup> Crown protected areas are reserves, conservation areas, and national parks set apart under four Acts administered by the Department of Conservation

<sup>3</sup> The Treaty of Waitangi is New Zealand's founding document. It is an agreement made in 1840 between representatives of the British Crown and more than 500 Māori chiefs

[Section 13 of the NZGB Act 2008](#) formalised Gazetteer requirements:  
(note that the 1946 Act did not establish any requirement to create and maintain a Gazetteer)

*Gazetteer*

**13 Gazetteer to be created by Board**

- (1) The Board must establish and maintain a publicly available record known as the New Zealand Gazetteer of Official Geographic Names.
- (2) The Gazetteer must record all official geographic names and the relevant *Gazette* or statutory reference for each official geographic name.
- (3) The Gazetteer—
  - (a) must include a record of—
    - (i) the type of geographic feature or Crown protected area that is named; and
    - (ii) the positional reference for the feature or area; and
  - (b) may include—
    - (i) any background information relevant to the history and name of the geographic feature or Crown protected area that is named; and
    - (ii) information on the spatial extent of the geographic feature or Crown protected area that is named.

[Section 32 of the NZGB Act 2008](#) strengthened compliance with official geographic names:

*Use of official geographic names*

**32 Official geographic names must be used**

- (1) If there is an official geographic name for a geographic feature or Crown protected area, that name must be used in all official documents.
- (1A) If 2 or more alternative official geographic names exist for the same geographic feature or Crown protected area, the use of any 1 of those names, or all of those names, is sufficient to comply with subsection (1).
- (2) However, subsection (1) does not apply if an official document containing a name other than an official geographic name states that the particular name is not the official geographic name of the geographic feature or Crown protected area to which it applies.

[Section 33 of the NZGB Act 2008](#) covers enforcement of section 32:

**33 Injunction may be granted by Court**

- (1) The High Court may, on the application of the Board, grant an injunction to prevent a person from publishing a name in an official document in breach of [section 32](#).
- (2) The High Court may rescind or vary an injunction granted under this section.
- (3) If the Board applies to the High Court for the grant of an interim injunction, the Court must not,—
  - (a) as a condition of granting an interim injunction, require the Board to give an undertaking as to damages; or
  - (b) take into account the fact that the Board is not required to give an undertaking as to damages.

## Gazetteers matter

The importance of New Zealand's [Gazetteer](#) to the public, government, and in meeting the partnership obligations with Māori, include:

- Maintenance of a publicly available [Gazetteer](#) of geographic names is a legal requirement.
- The [Gazetteer](#) provides for centralised management, maintenance and publication of official decisions.
- Authoritative data from the [Gazetteer](#) is available for use and reuse by anyone, in a variety of data formats and as a live [Web Feature Service](#).
- Geographic names (and the extents of features such as rivers and ranges) inform official map and chart products. Topographic data feeds back into the [Gazetteer](#), showing cross-government use and interoperability.
- The [Gazetteer](#) may be updated with stories and histories, and geographic names made official where government or public needs are identified, and to support national commemorations and events. The public can easily discover those stories and histories themselves through the online [Gazetteer](#) or its data.

## International context

The United Nations Group of Experts on Geographical Names (UNGEGN) has made numerous recommendations relating to Gazetteers. New Zealand has adopted those recommendations covering standardisation of names and format, and the minimum level of information a Gazetteer should contain.

The NZGB works closely with Te Taura Whiri i te Reo Māori (the Māori Language Commission) to implement other international best practice recommendations on language to assist where it can in promoting te reo Māori.

## New Zealand's previous Gazetteers

Before the electronic age, Gazetteers were published as lists in books, sometimes with supplements. They generally mirrored published maps. As a printed resource, they were often limited to columns for the name, geographic feature type, coordinates, and map or chart references. Sometimes they would include the derivation and physical description.

Since those first published lists these changes have enriched Gazetteers:

- The story behind the name provides connection and identity, acknowledges heritage, and gives context to the name.
- The geographic feature type to which the name applies informs of the physical description including extent.
- Details of the history of former and/or local naming provide a window to past events.
- Maori language geographic names provide opportunity for standardisation, revitalisation, restoration and recognition, leading to social acceptance and equality.
- For nations, knowing the history, origin and meaning of place names may help assert rights.
- Official status adds weight to required use of geographic names, especially in government documents and databases.

The Honorary Geographic Board and the NZGB published a number of Gazetteers such as the *Gazetteer of New Zealand Place Names (1968)* or 'Blue Book'. This Gazetteer lists names, the feature type, NZMS<sup>4</sup> map reference, and a grid reference. Decisions of the NZGB were closely linked to Lands and Survey's

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<sup>4</sup> New Zealand Mapping Service, the authoritative government mapping series' produced by the Department of Lands and Survey

NZMS maps, particularly the topographic NZMS 1 and NZMS 260 series, being commonly used by the public and other agencies. This was a primary method of communicating the NZGB's decisions on geographic names and made the decisions 'real'. However, the printed Gazetteers would go out of date due to new decisions and new mapping series.

Gazetteers were also published for special purposes. For the International Geophysical Year in 1957-1958, the New Zealand government directed the NZGB to start maintaining geographical naming in Antarctica, and the first *Provisional Gazetteer of the Ross Dependency* was compiled and published in 1958. This Gazetteer scoured all prior exploration maps and literature for existing geographic names, to provide the naming baseline for science and mapping.

By the 1990's the NZGB had part of the Gazetteer as an electronic database and Antarctic naming was upgraded to digital format in 1996 as part of an international effort to record all Antarctic naming (the SCAR<sup>5</sup> Composite Gazetteer).

User expectations for accessible and easy to find/reuse information, has influenced the changes to Gazetteers. The 1980s saw the widespread use of electronic data and applications such as spreadsheets and databases. Printed maps gave way as the primary means of conveying names spatially, to digital GIS<sup>6</sup> applications, also improving searching and analysis through electronic media. The New Zealand [Gazetteer](#) experienced all of these changes and by 2008, as required by the new NZGB Act 2008, a comprehensive, but interim, Gazetteer was produced using ArcGIS. Six spreadsheets were maintained separately, published as PDFs, and made publicly available on the Land Information New Zealand (LINZ) website. The system was not a fully integrated database and did not offer spatial context.

### The modern Gazetteer

Although complying with the NZGB Act 2008, the 'spreadsheets' Gazetteer was not user friendly and was difficult to extract useful information. The inefficiencies and ineffectiveness of the spreadsheets for users lead to the NZGB developing its first fully integrated Gazetteer database system with a GIS interface using QGIS<sup>TM</sup> (for spatial analysis and data maintenance), released in 2013. That system included an online web application (the 'online Gazetteer') providing public access for searching and viewing geographic names, and allowing data to be freely and openly downloaded or exported for use and reuse in three ways: .CSVs, raw data in the [LINZ Data Service](#), and selectively displayed information in the public facing online [Gazetteer](#).

A postgresql<sup>7</sup> database is central to the system. Each feature has a unique ID, and to each feature one or more names can be attached. Other information is then joined to the feature and/or name. The NZGB Secretariat spatially edits the [Gazetteer](#) through the plugin database for QGIS<sup>TM</sup>, an open source GIS platform. The database can also be updated directly.

This fully integrated spatial system allowed for effective and far more efficient management of official and unofficial geographic names for the Secretariat team who support the NZGB. It also enabled proposers and submitters, other government agencies, Māori and the public to directly enquire on information held on geographic names.

<sup>5</sup> Scientific Committee on Antarctic Research

<sup>6</sup> geographic information system

<sup>7</sup> postgresql is an open source object-relational database. A component 'PostGIS' adds support for spatial information

Open reuse of authoritative geographic names (the NZGB releases data under a [Creative Commons CC BY 4.0 licence](#)) also aids the dissemination of official name decisions.

While the NZGB's decisions continue to be communicated through official map and chart products, another major shift was the names and information about them in the Gazetteer, are now a standalone product and data in their own right.

## Recent Gazetteer updates

In 2016 the NZGB began work on enhancements to the public facing online [Gazetteer](#).

The improvements focussed on the user experience, with smarter predictive text, partial text results, and search filtering to make finding names easier. Search results now display all official feature geometries (points, lines, and polygons), and unique URL's exist for every name in the [Gazetteer](#).

Spatial coverage in the new online [Gazetteer](#) now extends to all of the NZGB's naming jurisdiction. The updated [Gazetteer](#) uses LINZ topographic mapping products at 1:50k and 1:250k, and a New Zealand Colour basemap incorporating NIWA's<sup>8</sup> bathymetric data – users can now find out about named undersea features to the limits of New Zealand's continental shelf and geographic names in Antarctica in their spatial context. Other contextual information can also be added like the LINZ aerial imagery mosaic. A 'names label' layer of significant geographic names appears by default providing users with additional context. It also allows the NZGB to highlight its decisions, or decisions from Treaty of Waitangi settlement, to officially restore original Māori names, eg the alternative names 'North Island' or 'Te Ika-a-Māui'.

After five years since launching the first online Gazetteer, in March 2018 the new online [Gazetteer](#) was launched on a new platform (Leaflet) with many improvements, giving users the ability to more easily discover geographic names with much more detailed spatial context.

Moving to a modular platform (Leaflet) provided flexibility to continue updating and refreshing the [Gazetteer](#) as technology changes.

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<sup>8</sup> National Institute of Water and Atmospheric Science



Image sourced from the online [Gazetteer](#) on 8 March 2019

## Gazetteer Statistics

There are currently, just over 50,000 features in the [Gazetteer](#) across New Zealand’s jurisdiction (including undersea and Antarctica), with over 53,000 names attached to those features.

32% of the names are official, with another 5% resolved in some way, mostly replaced names. Most names in territorial New Zealand pre-date the NZGB and have not been assessed. The NZGB ‘records’ these names, but the challenge is to convert the ~32000 unofficial ‘recorded’ names to official names.

99% of Antarctic names are either official or resolved, reflecting that all naming in Antarctica has been officially processed by the NZGB, though new work is underway to improve their positional accuracy. Similarly, the NZGB has methodically reviewed existing undersea feature names within its jurisdiction, submitting most to the international GEBCO<sup>9</sup> Gazetteer through SCUFN<sup>10</sup>. This review process is over 75% complete.

## The Gazetteer of the future and challenges

There are challenges to continue improving the spatial context for undersea and Antarctic feature naming – the data may not currently exist, or it is not openly available. A new LINZ tile basemap of the entire Antarctic continent is proposed for development, with the intention of using the highly accurate elevation data now available from the Polar Geospatial Center, released late 2018.

<sup>9</sup> General Bathymetric Charts of the Ocean

<sup>10</sup> Sub-Committee on Undersea Feature Naming

In 2019, the NZGB identified 25 further enhancements to improve user experience and administration of the [Gazetteer](#), eg user defined preferences for colour, additional spatial filtering, hiding geometry, etc.

Upgrading the spatial information in the [Gazetteer](#) highlights issues around the accuracy and completeness of information. As a fundamental layer of geographic information, naming data must be accurate enough to stand on its own. For example, the exact positions of New Zealand's offshore islands have been defined more accurately since 1946 and the coordinates for many official names require updating. Behind the scenes in the database, significant effort standardising fields and formatting ensures 'cleaner' data for reuse.

Users now expect more from the [Gazetteer](#), especially in terms of standardised orthography for Māori names. Authoritative information is expected for all geographic names, official and unofficial, whether spelling, history, location, extent – not just for those geographic names that the NZGB has considered. These expectations also raise issues of consistency across 90+ years of decisions, naming conventions, and practices.

The NZGB is actively working toward these expectations from a whole dataset point of view, and exploring how to increase the dataset's value, without compromising its legal purpose. In the near future the [Gazetteer](#) might also integrate links to New Zealand's National Library records and media content through Digital New Zealand. The [Gazetteer](#) of the future might represent geographic features three dimensionally using NIWA's<sup>11</sup> bathymetry elevation data from the latest LIDAR<sup>12</sup> campaigns in New Zealand, and the newest satellite derivation DEMs<sup>13</sup> for Antarctica.

Another challenge is the NZGB Secretariat are not software developers or expert database administrators. There is a need to build GIS skills on top of other very different skillsets to create and maintain a modern Gazetteer.

Fundamental IT<sup>14</sup> support is also needed to upgrade the database plugin for compatible and continued use on the constantly improved and released versions of Q-GIS™.

And as always there is the challenge of having finances to deliver a Gazetteer that meets all needs. As an independent statutory board of government with limited Crown funding, these kinds of development initiatives compete with other NZGB projects and need persuasive arguments to convince the host department, LINZ, of priority.

Challenges remain to provide even better spatial information and to encourage people to use the authoritative source. The public, Māori and government also have growing expectations of the [Gazetteer](#) to provide comprehensive information.

### **Demonstration of the New Zealand [Gazetteer](#)**

The delegate from New Zealand, Wendy Shaw, will demonstrate, on request, the New Zealand [Gazetteer](#) at any time during UNGEGN Session #1.

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<sup>11</sup> NIWA – National Institute of Water and Atmospheric Science

<sup>12</sup> LIDAR – remote sensing method that uses light detection and Ranging

<sup>13</sup> DEM – Digital Elevation Model

<sup>14</sup> IT – Information Technology

## Contact

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