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Visual convincing of intangible cultural relationships using maps: A case study of the Tongariro National Park World Heritage nomination dossier

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Key Messages

- UNESCO World Heritage nomination guidelines require the use of maps and GIS for showing boundaries and buffer zones.
- Tongariro National Park nomination maps included Māori language, travel narratives, and origin stories.
- The New Zealand government used Maori maps, language, and stories to visually convince UNESCO and the World Heritage Committee of intangible cultural relationships at Tongariro National Park.

UNESCO World Heritage site nominations require the use and presence of maps and GIS to demarcate potential heritage property boundaries. UNESCO and the World Heritage Committee provided specific cartographic guidelines and standards for the inclusion of maps within the nominations. The New Zealand government used maps and GIS to visually convince UNESCO, the World Heritage Committee, the International Union on the Conservation of Nature, and the International Council on Monuments and Sites of intangible cultural relationships at Tongariro National Park. More specifically, New Zealand combined scientific maps, Māori language narratives, and symbols to make the intangible tangible and geographically visible. Maps and GIS images that accompanied World Heritage nomination dossiers were housed at the UNESCO World Heritage Centre and the International Council on Monuments and Sites in Paris, France. The first section of the paper introduces the data sources and methods used in our archival research. Next, we provide a brief description of the Tongariro National Park nomination and present a case study on, and interpretation of, the maps and GIS contained within the Tongariro National Park World Heritage nomination dossier. Finally, we will offer some conclusions and directions for future research.

Keywords: cultural mapping, Indigenous people, UNESCO, World Heritage

Convaincre visuellement de l'existence de relations culturelles intangibles avec des cartes : le cas de la mise en candidature au patrimoine mondial du Parc national de Tongariro

La mise en candidature de sites au patrimoine mondial de l'UNESCO requiert l'utilisation de cartes et de SIG pour délimiter les propriétés patrimoniales potentielles. L'UNESCO et le Comité du patrimoine mondial fournissent des lignes directrices et des normes cartographiques précises pour l'inclusion de cartes dans les mises en candidature. Le gouvernement de la Nouvelle-Zélande a utilisé des cartes et un SIG pour convaincre visuellement l'UNESCO, le Comité du patrimoine mondial, l'Union Internationale pour la Conservation de la

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Nature et le Conseil international des monuments et des sites de la présence des relations culturelles intangibles au Parc national de Tongariro. Plus précisément, la Nouvelle-Zélande a combiné des cartes scientifiques, des récits en langue maorie et des symboles pour rendre l'intangible réel et visible sur la carte géographique. Les cartes et les images issues du SIG qui accompagnent les dossiers de mise en candidature au patrimoine mondial ont été déposées au Centre du patrimoine mondial de l'UNESCO et au Conseil international des monuments et des sites à Paris, en France. La première section de l'article présente les sources des données et les méthodes utilisées dans notre recherche archivistique. Ensuite, nous donnons une brève description de la mise en candidature du Parc national de Tongariro et nous présentons une étude de cas des cartes et du SIG contenus dans le dossier de mise en candidature au patrimoine mondial du Parc national de Tongariro ainsi que leur interprétation. Finalement, nous présentons certaines conclusions et perspectives pour de futures recherches.

Mots clés : cartographie culturelle, Autochtones, UNESCO, patrimoine mondial

Introduction

Applying the United Nations Declaration on the Rights of Indigenous People to the World Heritage Convention and the inscription of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage properties opens up questions about how Indigenous people participate in mapping and geographic information systems (GIS) within the World Heritage site nomination process. The World Heritage Operational Guidelines require States Parties of nominated sites to include mapped property boundaries and buffer zones. Some States Parties like New Zealand, Australia, and the United States have even supported cultural landscape nominations using maps that included Indigenous peoples' languages, stories, and symbols. Addressing the question of participation is challenging because Indigenous people have faced obstacles and even exclusion from the nomination process in the past. Mililani Trask is a Hawaiian attorney and activist who argued that "The process utilized by UNESCO, the World Heritage Committee and its Advisory Bodies IUCN and ICOMOS lacked transparency, excluded Indigenous peoples and did not respect the provisions of the United Nations Declaration on the Rights of Indigenous Peoples, including the principle of free, prior and informed consent" (Disko and Tugendhat 2013, 8).

In this paper, the term "Indigenous" refers to those people who are the original or oldest surviving inhabitants of the area, who have lived in a particular homeland for centuries, and who share a language, customs, and history (Maybury-Lewis 2002). This definition generally refers to people Indigenous to Australia, Canada, New Zealand, and the United States. The term is more contentious and debated in many regions of the world like Africa, South Asia, and Southeast Asia (Niezen 2003). The scope of our research focused on New Zealand and the nomination of Tongariro National Park to the World Heritage list. Documents associated with the nomination of Tongariro National Park to the UNESCO World Heritage list often refer to the Māori iwi (tribe) known as Ngāti Tūwharetoa. A State Party, like New Zealand, is responsible for the creation and diffusion of nomination dossiers as specified by the World Heritage Convention of 1972 (UNESCO 2015). UNESCO designates World Heritage sites as natural, cultural, and mixed cultural landscapes. The focus here is on maps and GIS associated with New Zealand's nomination of Tongariro National Park in 1990 (natural) and 1993 (cultural landscape).

Examples of Indigenous people mapping their territories or having their lands and resources mapped for them exists in the literature, including global case studies (Chapin et al., 2005); Indigenous North Americans, mapping, and GIS (Lewis 1998; Laituri 2011); mapping in Canada (Brealey 1995; Sparke 1998; Eades 2015); map biographies, land-use/land occupancy mapping, counter-mapping, ethnographies, bioregional mapping, and participatory methods (Rundstrom 1991; Aberley 1993; Peluso 1995; Chapin and Threlkeld 2001; Tobias 2000; Wood 2010); and the history of mapping, GIS, and resources within institutions (Palmer 2012a; Palmer and Rundstrom 2013). The research in this paper contributes to the latter, with a focus on UNESCO World Heritage nomination documents held at international archives in Paris, France. Studies that trace Indigenous people's participation in cartographic processes continue to be scarce. One reason for this trend is that very few governmental or international archival documents acknowledge the contributions of Indigenous informants within map-making processes, including nation-wide mapping projects like land surveys, topographic map series (Lewis 1998), and now World Heritage nominations. There is also a general lack of theoretical engagement within Indigenous mapping and GIS research. Although a handful of research focuses on the blending of Indigenous geographic knowledge with technoscience (Rundstrom 1995; Turnbull 2003; Pearce and Louis 2008; Palmer 2012b; Palmer 2016), there is little emphasis on the ways States Parties appropriate, incorporate, or share Indigenous geographies as a form of rhetoric to convince international agencies (e.g., UNESCO, World Heritage Committee, World Bank) about their collaborations or co-management experiences with Indigenous peoples in order to receive funding or inscription onto the globally prestigious World Heritage list.

The idea that maps are propositions that make arguments confirming authority (Wood 2010) can inform Indigenous mapping and GIS research. In terms of States Parties, maps convey authority over territory—what is on State maps becomes factual, becomes socially accepted (Wood 2010), and becomes the landscape itself. In our case, maps support and authorize the text statements within the nomination documents. Furthermore, maps and GIS do not act alone. Authority is given to the nominations through the signatures of experts, scientific research, institutions, funding, and through the territorial sovereignty of the States Parties that was clearly recognized by UNESCO in the World Heritage Convention of 1972. Scientists, cartographers, and GIS technicians work together using resource inventories, data processing, incorporation of map projections, scale selection, and a multitude of mapping techniques to produce authoritative images (Wood 2010). The rhetoric embedded in maps of nature is predominantly geological, ecological, botanical, climatological, and Cartesian. Cultural practitioners, including members of Indigenous communities, elders, conservation groups, or activists, also contribute rhetoric. They work with social scientists, cartographers, and GIS technicians to produce hybrid maps featuring both western scientific cartographies and Indigenous languages, stories, and symbols (Palmer 2012b;2016). Sometimes the maps counter authority, sometimes they complement it.

In this paper, we argue that the New Zealand government used maps and GIS to visually convince UNESCO, the World Heritage Committee, IUCN, and ICOMOS of intangible relationships at Tongariro National Park. In other words, maps were used as a visual tool to make the intangible tangible. Maps and GIS images accompanied the World Heritage nomination dossiers created by New Zealand and sent to the UNESCO World Heritage Centre in Paris, France. The World Heritage Centre houses a massive archive of original World Heritage nominations; copies of nominations are sent to the IUCN in Gland, Switzerland and to the ICOMOS in Paris for review and storage. In the next section of this paper, we will introduce the data sources and methods used in our archival research. We will then provide a brief description of the Tongariro National Park nomination, which will be useful for understanding the context and complexity of the Tongariro National Park nomination that originated in 1986 and concluded in 1993. This will be followed by a presentation of a case study on, and interpretation of, the maps and GIS contained within the Tongariro National Park World Heritage nomination dossier for the years 1990 and 1993. Finally, we will offer some conclusions and directions for future research.

Data sources and methods

Providing a historical account of mapping and GIS development within government agencies, non-governmental organizations, private corporations, academia, and international organizations "sheds light on the historical, social, and political contexts for technological change," as well as the use and construction of maps and GIS (Palmer and Rundstrom 2013, 1144). There are a couple of historical approaches to consider here. First, insider accounts by those who have actually worked on mapping and GIS projects provide valuable information on processes used, motivations for initiating projects, and knowledge of revisions during the project. On the other hand, personal accounts may contain biases "because insider researchers have a personal stake and substantive emotional investment in the setting" (Brannick and Coghlan 2007, 60). This can result in skewed accounts and conclusions. A second approach is archival research featuring documents. Histories written from the outside are challenging because key documents are often missing or access to documents may be limited. Furthermore, researchers may not have access to first-hand accounts or personal memos produced by cartographers. However, documents hold valuable information regarding context, routines, authors, key personnel, organizational structures, and dates. We adopted the latter approach and utilized documents held at international archives.

UNESCO is an international agency tasked with the promotion of peace and cultural understanding through education, science, and heritage on a global scale (Meskell 2013). Both UNESCO and the World Heritage Committee provide guidelines for the development and submission of dossiers, by States Parties, in support of a site being nominated and inscribed to the World Heritage list. Nomination dossiers are sent to the UNESCO World Heritage Centre in Paris, where they are archived and made accessible through the UNESCO Library for research. Cultural nominations are held at the ICOMOS in Paris and the natural site dossiers are held at the IUCN in Gland, Switzerland.

We conducted archival research at the UNESCO World Heritage Centre and the ICOMOS Documentation Centre. UNESCO and the ICOMOS allowed the use of digital photography to record documents. Each nomination dossier contained the primary nomination documents composed by States Parties agencies, including departments of conservation, park services, and mapping and land surveying programs. Dossiers also contained supplementary documents such as plans of management, scientific case studies, maps, photographs, and visitor brochures. We researched the Tongariro National Park nomination dossier, active between the years of 1986 and 1993. Tongariro was the first mixed natural/cultural site proposed by New Zealand and inscribed by the World Heritage Committee and UNESCO to the World Heritage list. Another source of primary data was States Parties to UNESCO correspondence letters and memos. These letters are only released to the public 20 years after a site is nominated to the World Heritage list. Correspondence between the New Zealand government and UNESCO informed our findings. We checked the spelling of Māori words, found in the nomination documents, using an online Māori-English dictionary (https://maoridictionary.co.nz/). However, some words do not appear in the online dictionary. We did not interview UNESCO staff, New Zealand government staff, or any Māori individual or organization.

Our research focused on maps found within the Tongariro National Park nomination dossier. Analysis of World Heritage nomination dossier maps required an understanding of the history of mapping instructions found in the Operational Guidelines. Through the Operational Guidelines, the World Heritage Committee and UNESCO provided criteria for States Parties to use in the construction of nomination dossiers supporting sites for consideration and inscription on the World Heritage list. The Operational Guidelines hold the criteria for creating and submitting maps and other geographic information pertaining to the demarcation of property boundaries and buffer zones associated with a nominated site. Every few years, the World Heritage Committee and UNESCO updated the mapping requirements. There are currently 17 versions of the guidelines published by UNESCO for the years 1977, 1978, 1980, 1983, 1984, 1987, 1988, 1992, 1994, 1996, 1997, 1999, 2002, 2005, 2008, 2011, 2012, 2013, 2015, and 2016. Results of the complete historical analysis goes beyond the scope of this paper. Rather, we focused on the Operational Guidelines published in 1984, 1987, 1988, and 1992 and used by the New Zealand government for nominating Tongariro National Park. The mapping guidelines present between 1984 and 1992 placed an emphasis on providing three separate maps at various scales for review by UNESCO, the World Heritage Committee, the IUCN, and the ICOMOS. One map had to show the exact location of the nominated property at a scale between 1:50,000 and 1:100,000, and contain a date of publication. A second map had to show the perimeter or boundaries of the nominated area(s) mapped at a scale between 1:5,000 and 1:25,000. And a third map had to show the zones of legal protection inside and outside the park boundaries mapped at a scale between 1:5,000 and 1:25,000. The guidelines encouraged States Parties to include buffer zones around the site property if deemed appropriate (UNESCO 1984;1987;1988;1992b). The guidelines encouraged the submission of additional maps to complement the scientific and cultural content of the nominations.

Finally, the first author interpreted the maps found within the 1990 and 1993 nominations dossiers. Interpretation included identifying key recurring themes of the map content associated with each nomination, as well as themes that were absent. Questions that guided the interpretations and the coding of data included asking: What meanings do the maps convey? How do maps persuade or convince readers about the truth? The lead author also searched for the reconciliation of competing ideas, contradictions, and alternatives (Rose 2016). Careful attention was paid to the intertextuality of the maps or "the way that the meanings of any one discursive image or text depend not only on that one text or image, but also on the meanings carried by other images and text" (Rose 2016, 191). The first author used NVivo 10 software to store, manage, and code several themes on each map found within the nomination dossier for Tongariro National Park.

The nomination of Tongariro National Park to the UNESCO World Heritage list

Tongariro National Park came into being through one of many cultural encounters and exchanges between European settlers and the Māori people during the colonization of New Zealand. Among the most important exchanges was the Treaty of Waitangi in 1840, signed by British Crown officials and Māori leadership (Baird 2013; Orange 2015). The treaty established British sovereignty and Māori ownership of land and other resources. Both English and Māori language versions exist and have been interpreted differently. There was not a consensus among Māori leaders pertaining to the Treaty's content and the future of Tongariro. For instance,

> Mananui To Heuheu, paramount chief of [Ngāti Tūwharetoa], was one of the few Māori chiefs who refused to sign the Treaty of Waitangi in 1840 and thereby cede sovereignty to the British Crown. His son Horonuku, who succeeded Mananui in 1846 when he was buried by an avalanche on the mountain and who became known as Te Heuheu Tukino in 1862, came under severe pressure from land-hungry European settlers. When faced with the dilemma of having to divide his land following a dispute with the Maniapoto iwi or lose it to the Land Court, he took the advice of his son-in-law Lawrence Grace to make it "a tapu place of the Crown, a sacred place under the mana of the Queen." (ICOMOS 1993, 135)

The landscape encompassing Tongariro was an important part of Māori cultural identity. The ICOMOS noted in their site evaluation that "Tongariro is the spiritual and historical centre of Māori culture" (ICOMOS 1993, 138).

Māori knowledge of the land, ocean, and mountains was based on kinship, guardianship, and knowledge of sacred spaces. Knowledge about sacred land was performed and rehearsed as a way of keeping the knowledge fresh in the minds of Māori individuals and communities (Baird 2013). Land was not simply an inanimate object to plow, extract from, or settle. Instead, Māori knowledge animated the land, welcomed the mountains as their ancestors, and accepted the wind as life-giving breath (UNESCO 1993). Māori knowledge was also decentralized and variant. For instance, the Māori people consisted of multiple tribes or iwi. The Ngāti Tūwharetoa iwi had spiritual and custodial responsibilities over what was to become Tongariro National Park and were a part of another important exchange that occurred in 1887, when "then Paramount Chief of Ngāti Tūwharetoa, Te Heuheu Tūkino IV, gifted the lands of Tongariro to the Crown, and in 1894 the Crown established New Zealand's first national park" (Baird 2013, 327). However, most European officials and settlers did not adopt the Māori knowledge of the world; rather, they imposed European value systems onto the land (Tapsell 1997; Baird 2013). For instance, after botanist Leonard Cockayne surveyed Tongariro National Park in 1907, he stated that "Surely such a park should be one of the most prized possessions in our country" (UNESCO 1993, 137).

Value systems based on property ownership, extraction of resources, and regulations "violated Māori peoples' customary land rights and laws" (Tapsell 1997, 332).

> Tongariro is about offering a sense of place for Ngāti Tūwharetoa, the iwi who have historically occupied this area. Waahi tapu (places sacred to Māori) include ancestral places of possession, burial, battle, belief and spiritual power ... The tapu (sacred) nature of Tongariro to Ngāti Tūwharetoa is embodied in their deep knowledge of the significance of the landscape. Oral history and ancestral relations connect iwi with the land—tangata to whenua. Spiritual connection through tupuna (ancestors) is demonstrated by the great reverence for the peaks. (UNESCO 1993, 7)

The New Zealand government proposed a mixed natural and cultural site in 1986. Led by the New

Zealand Department of Lands and Surveys (DLS), the nomination presented the park as a natural, pristine volcanic landscape. Any significant details on Māori intangible relationships with the landscape were missing from the dossier. In 1987, the World Heritage Committee deferred the nomination inscription pending additional information from the New Zealand Department of Conservation on a proposed ski resort and how Māori values would be implemented into the plan of management. According to the 1993 nomination dossier:

> Tongariro National Park . . . was nominated for World Heritage status in 1986 as a joint natural and cultural site. The World Heritage Commission gave preliminary consideration to the nomination but deferred final consideration pending clarification of a number of aspects of the Park Management Plan. The Management Plan was amended and approved by the New Zealand Parks and Reserves Authority in 1989. In 1990 UNESCO approved the listing of the Park as a World Heritage Natural Site, but deferred the cultural aspect. (UNESCO 1993, 1)

New Zealand submitted a revised nomination containing the contributions of Māori informants (UNESCO 1993). The World Heritage Committee members reviewed the documents and inscribed Tongariro National Park as the first cultural landscape site in 1993 (Baird 2013). Previous studies of the Tongariro National Park nomination provided ample details on the park's nomination history, but nothing was mentioned about the maps and GIS present in the nomination dossier and how they were designed to convince the World Heritage Committee, the IUCN, the ICOMOS, and UNESCO.

Tongariro World Heritage nomination maps and GIS: A case study

The first nomination of Tongariro National Park (1986–1990), assembled by the New Zealand DLS, held three maps. A small-scale terrain map of the North Island of New Zealand (Aotearoa) sat positioned at the end of the nomination document. The map was primarily black and white, except for a red area showing the boundaries of Tongariro National Park. A rather featureless inset of New Zealand was positioned in the upper left corner of the terrain map. Only the cities of Auckland and Wellington appeared on the inset map. Otherwise, the map implied that Aotearoa was an uninhabited, exaggerated mountainous landscape situated between two urban areas. It appeared as though humanity had been peeled away from a digital elevation model image, except for the economic hubs to the north and south of the park. Wood (2010) gave a similar example of a map free of so-called folk ontologies like place-names, rivers, or infrastructure.

A second map, published by the Science Information Division of the Department of Scientific and Industrial Research (DSIR), was a 1:50,000 scale topographic/vegetation map. Lineage of the vegetation map could be traced to an "ecological survey of Tongariro National Park [that] was made between 1960 and 1966 in which data were collected on the Park's flora, vegetation, soils, and vertebrates" (Atkinson 1985, 361). Mapped vegetation existed as 20 structural classes covering everything from forests to fernland to loamfields (Atkinson 1985). DSIR cartographers used hues of green for categorizing vegetation types, which give the impression of calmness and order in an otherwise volatile volcanic landscape. The barren summits of the volcanoes stood out like radial flows melting across the surface of the map. The contoured volcanic cones were textbook examples of stratovolcanoes in cartographic form. A third map called "NZMS 273-4 Tongariro National Park" was mapped at a scale of 1:80,000; this shaded relief map was created and published by the DLS cartographers (UNESCO 1993). As with the vegetation map, the flowing topographic lines and shaded relief directed the viewer's attention to the volcanoes at the map's centre. In addition, a small glossary of Māori place-name words made up a portion of the map index found on the left-hand side of the map (UNESCO 1993).

Maps in the 1990 nomination documents presented convincing arguments that Tongariro was a natural place void of any kind of human presence and most importantly, void of Māori culture and geographies. Instead, the DLS showcased Tongariro as a remote landscape featuring majestic volcanoes surrounded by diverse vegetation types, crater lakes, and a ski resort. An assemblage of cartographers, state officials, scientific expeditions, and resource inventories contributed to the construction of the relationships among the volcanoes as interrelated contour lines, steep gradients, elevation, and the tangible edges of debris flows and vegetation. Readers who possessed scientific backgrounds and who were schooled in the disciplines of geomorphology and ecology could understand the natural boundaries and flows present on the maps (Monmonier 1996). State-authorized scientific maps traveled with the nomination half-way around the world to Paris to convince the World Heritage Committee, the IUCN, and UNESCO of Tongariro National Park's universal value as an aesthetic and economic natural resource, re-gifted by New Zealand for the entire world to share.

Although the 1990 nomination supported the inscription of a mixed natural and cultural site, the DLS did not include people on their maps and silenced any kind of Māori voices that supported or opposed the nomination of Tongariro to the World Heritage list. Instead, scientifically skilled people at the DLS and the Department of Conservation constructed a very basic nomination package containing a minimal amount of Māori knowledge (UNESCO 1993). Furthermore, the first nomination was void of any Māori representations such as maps or story geographies. So while the New Zealand government and the Māori people had a collaborative relationship in conservation management through treaty relations at Tongariro, this was not made visually explicit in the nomination dossier

Figure 1
The author's sketch of the Tongariro nomination cover with Māori symbols and mountains.
SOURCE: Nomination Dossier for Tongariro National Park. UNESCO World Heritage Centre. Paris, France (UNESCO 1993).

evaluated by international organizations and committees unfamiliar with the existing State-Indigenous relations in New Zealand.

The Māori culture was so silenced on the maps that the ICOMOS, tasked with evaluation of the cultural components of a proposed site, did not even play a role in the evaluation of Tongariro for the 1990 World Heritage Committee meeting in Paris. Considering the nature of the maps, it was surprising that New Zealand's Permanent Delegation to UNESCO was concerned that Tongariro was inscribed as a natural site only. They wrote,

> I have been asked by the Department of Conservation to raise with you the listing of the Tongariro National Park as a natural site only. It would appear, though my own files are not clear on this point, that Tongariro National Park was originally nominated by New Zealand as a joint natural/cultural site, and the New Zealand authorities are puzzled by the lack of reference to this aspect, and by the lack of any explanation, in your notification of the inscription, of its not being inscribed as a joint natural/cultural site. (UNESCO 1991b)

According to UNESCO, the ICOMOS was not prepared to evaluate the cross-cultural relationships between the New Zealand government, the Māori people, and the sacred mountains. UNESCO responded that "studies necessary for making regional comparisons among various sites which illustrate cultural heritage values of the Asia-Pacific had not yet been undertaken" (UNESCO 1991a). In addition, ICOMOS was undergoing organizational changes during the period of 1991–1992 and was unprepared to evaluate the cross-cultural geographies of Tongariro (UNESCO 1992a). It was the responsibility of the New Zealand government to explicitly show their relationships with the Māori people and the cross-cultural histories and geographies that existed for over a century.

Visual convincing of intangible relationships

In 1993, archaeologist Susan Forbes (Kotuku Consultancy Limited) and the New Zealand government prepared and sent a revised nomination dossier to the World Heritage Committee for review of Tongariro as a cultural site (UNESCO 1993). Māori organizations and individuals contributed to the cultural nomination including the Tongariro-Taupō Conservation Board, Sir Hepi Te Heuheu who was the Paramount Chief of Ngāti Tūwharetoa, the Department of Conservation, and the Tuwharetoa Māori Trust Board (UNESCO 1993). Convincing the World Heritage Committee, UNESCO, the IUCN, and the ICOMOS of the significance of the Māori cultural landscape at Tongariro required more than simply providing several pages of historical text on the site. The New Zealand government needed to show the importance of intangible relationships through the presentation of culturally relevant maps and stories, and through the use of Māori language.

The 1993 cultural nomination contained four maps. An oblique-view story map is featured on the front cover of the nomination. The approximate positioning of the birds-eye view hovered over Lake Taupō, looking towards Pihanga, with Tongariro, Ngauruhoe, and Ruapehu in the background. Emerging from the lake was a red-coloured symbol, that tapered at the bottom before transitioning into swirls and spirals as it veers off to the right-hand side of the page. The symbol resembled flowing air or the breadth of the mountains (Figure 1): "Te ha o taku maunga, ko taku manawa. The breath of my mountain is my heart" (UNESCO 1993, 8). Through a combination of English and Māori languages, the nomination dossier and the story map explained that "The clear association of the mountains with ancestors and chiefs meant that the mountains were truly part of the Ngati Tuwharetoa people—bound to their whakapapa through living landscapes" (UNESCO 1993, 8). A second story map appeared on page 3 of the 1993 nomination (Figure 2). The black and white map traced the journey of Ngatoroirangi, navigator of the Arawa canoe, to Tongariro. Important placenames, volcanic lakes, and volcanoes are represented.

> The first settlement of this land was in the far North, Auckland and central Bay of Plenty. One of these canoe migrations was the Arawa canoe making landfall first at Whangaparaoa, then travelling east to Maketu in the Bay of Plenty (see Map). The descendants of that canoe still hold authority over the land as far south as the Tongariro National Park. Maori tribal affiliation is explicit in identification

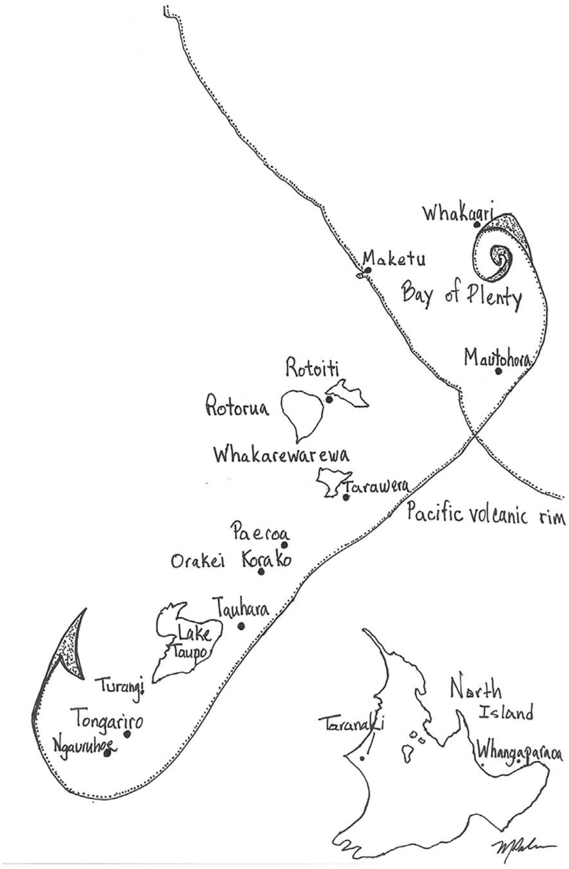

Figure 2
The author's sketch of the Māori story map found in the 1993 nomination document.
SOURCE: Nomination Dossier for Tongariro National Park. UNESCO World Heritage Centre. Paris, France (UNESCO 1993).

> with individual waka (canoes) and tupuna (ancestors)—invariably the captains and navigators of those waka. This tribal affiliation is constant irrespective of where people finally settled. Ngāti Tūwharetoa—the people of the Park—identify with the navigator of the Arawa canoe, Ngatoroirangi. As navigator of their canoe, and legendary bringer of fire to Tongariro, Ngatoroirangi features prominently in the oral history of Ngāti Tūwharetoa. (UNESCO 1993, 6)

A small inset map of Aotearoa rested in the lower left-hand corner of the main story map. Both story maps showed the entanglement of Māori stories, oral histories, symbols, and cartographic features. The 1993 nomination held a location map showing the boundaries of the sacred gift of the park by Te Heuhe Tukino IV to New Zealand with the original boundaries shaded dark gray, the 1907 boundary additions shaded light gray, and the 1987 boundaries are shown as well. A GIS map was also a part of the dossier. It showed the boundaries of the park and a list of coordinate points making up the boundaries. The map area was shaded yellow. Like all of the maps in the 1993 nomination dossier, no author or source information was present.

The 1993 nomination maps differed from the maps found in the 1990 nomination in that the story maps attempted to convince readers about the presence of intangible relationships associated with the cultural landscape at Tongariro National Park. As with the scientific maps found in the 1990 nomination, the 1993 maps contained complex symbology and information that would not be easily understood by persons unfamiliar with Māori oral histories and creation stories. For instance, the topographic maps showed flow as a geomorphic interpretation of contour lines. In a different way, the 1993 story maps presented flow as canoe journeys, creation, and the breath of the mountains. In addition, the 1993 nomination maps expressed some cultural entanglements between western science and Indigenous ways of knowing that did not exist in binary opposition, but rather complemented one another. This was achieved by incorporating elements of Māori culture into the maps alongside the locations of landforms, lakes, the ocean, and volcanoes used to orient readers unfamiliar with Māori oral geographies. The stories animated the maps and transformed the landscape beyond the contour lines and vegetation categories of topographic maps by including human journeys, origin stories, and the presence of ancestral beings. The assemblage of maps, stories, language, symbols, and New Zealand state authority visually convinced the World Heritage Committee of intangible relationships that existed at Tongariro National Park. As a result, UNESCO inscribed Tongariro National Park as the world's first cultural landscape site (UNESCO 1993).

Conclusions

The UNESCO World Heritage nomination process is State-centric and supports the territorial sovereignty of nation-states (Meskell 2013). What we have shown in this paper is how New Zealand used the power of maps (Wood and Fels 1992) as a tool of State authority to get Tongariro National Park nominated to the World Heritage list in both 1990 and 1993. New Zealand established authority through two different, yet complementary, forms of State authority: scientific/natural and scientific/cultural. State authority is traceable through all the listed references within the dossier, including endorsements by government officials, scientists, and resource managers. The passage of nomination documents through the State is obligatory; State representatives must sign off on all documents. Thus, States are the ultimate authority within the UNESCO World Heritage network. In the case of Tongariro, the authoritative voices of Māori informants rode on a tide of obligatory State authority. In terms of UNESCO World Heritage nominations, there is no way to get around States Parties. With that said, World Heritage nominations must still be evaluated by the World Heritage Committee, the IUCN, and the ICOMOS for the presence of appropriate and convincing evidence that a site is worthy of inscription on the World Heritage list.

Even though the New Zealand government proposed a mixed natural and cultural site for World Heritage inscription between the years of 1986 and 1990, their proposal fell short of providing evidence of Māori involvement in the management of the park. The proposal for a natural site abounds within the content of each map submitted as part of the first nomination dossier. Maps reflected what the DLS believed made up the landscape at Tongariro. Apparently, DLS experts were indeed skilled and knowledgeable about the park's vegetation regimes, snow-covered volcanic summits, and lakes, but lacked adequate knowledge of the intangible relationships between the Māori people and the landscape. The New Zealand government successfully got Tongariro inscribed as a natural site. However, to achieve inscription of the novel cultural landscape designation, the government needed to convince readers of the intangible relationships existing at Tongariro.

Convincing the ICOMOS, the World Heritage Committee, and UNESCO that intangible relationships existed at Tongariro necessitated the addition of Māori language, stories, and symbology into the 1993 cultural nomination. Māori stories and oral histories stood out, front and centre, within the documents—not within the margins of the documents as was the case with some resource management documents found at the United States Bureau of Indian Affairs (Palmer 2007). Archaeologist Susan Forbes, with the assistance of Māori informants, combined government documents with maps presenting spatial narratives and oral histories to create hybrid maps (Palmer 2016) and geographies (Whatmore 2002). Representational elasticity allowed for the co-construction of a culturally appropriate nomination dossier, one that ultimately led to the first cultural landscape site in the world. Maps assisted in visually convincing international agencies, UNESCO, and the World Heritage Committee of intangible relationships between the Māori people, New Zealand settlers, and the Tongariro landscape. Indigenous people and organizations should consider using maps to contribute to the World Heritage nomination process, or even to opposing inscription. This is especially relevant for the nomination of cultural landscapes or for proposing what might be called a rights-based approach to mapping and GIS.

Future research will include the first author's more extensive research on World Heritage mapping and Indigenous peoples at 14 different sites around the world. In particular, there should be further research on the various ways maps visually convince readers of intangible relationships or even how to map out intangible relations. This effort would be particularly important for understanding Indigenous mapping and GIS, especially those maps that emerge in settler societies like the United States, New Zealand, Australia, and Canada. Do similar maps and GIS exist in Africa, South Asia, Southeast Asia, Latin America, or East Asia? And finally, the emerging research area called visual rhetoric (Foss 2004) could greatly enhance geographers' understanding of how maps convince readers.

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