Vacating place, vacated space? A research agenda for places where people leave

Jessica de Koning [a,1], Stephanie Ketterer Hobbis [b,1,*], Jeffrey McNeill [c,1], Gerard Prinsen [c,1]

[a] *Rural Sociology, Wageningen University, Hollandseweg 1, 6706 KN, Wageningen, the Netherlands*
[b] *Sociology of Development and Change, Wageningen University, Hollandseweg 1, 6706 KN, Wageningen, the Netherlands*
[c] *School of People, Environment and Planning, Massey University, Palmerston North, 4442, New Zealand*

A B S T R A C T

What happens to rural places when people leave? We propose a research agenda that accounts for the material and immaterial values of depopulating and depopulated places. A three-pronged research framework departing from the notion of place is outlined that focuses on the social and political relations and the natural environment in which vacating places are embedded. We use vignettes of places in Ecuador, New Zealand and the Autonomous Region of Bougainville of Papua New Guinea to illustrate how this framework can be used to explore how depopulation has transformed the sense of place. Each explores an aspect of this transformation: (1) replacing people – where inhabitants of a place are replaced; (2) diluting local voice – where the local sense of place is diluted through changing governance arrangements through institutional amalgamation; and (3) transforming nature – where the biophysical transformation of a space effectively renders it inhabitable. Each vignette answers questions about who speaks for, who benefits from, and what is valued about this place. By paying close attention to political, economic, and environmental transformations and what they mean for the values of these depopulating rural areas as well as by showcasing different modes of vacating space and the consequences on legitimacy and beneficiaries, we highlight the importance of this research framework for global public policy and its applicability for both the Global North and the Global South.

1. Introduction

As a space for thriving biodiversity, food production and sustainable development, rural areas are forced to deal with major challenges such as globalization, climate change, urbanization and social-economic decline (Austin et al., 2020; Li et al. 2019; Ubarevičienè and van Ham 2017). Yet public policy regularly side-lines rural experiences or considers them only in comparison to urban populations (Hogan 2004; Woods 2007). Rural areas are often framed in terms of their function within global economies or as sites for food and recreation production for urban dwellers (Bock, 2018; Lynch, 2005; Woods 2007). For example, while European policymakers increasingly emphasize that rural development should be multifunctional and locally specific, they also explicitly prioritize the creation of new networks between the rural and the urban and primarily frame rural development as agricultural development (van der Ploeg and Roep, 2003). The United Nations'

Sustainable Development Goals (SDGs) offer further proof of this prioritization (see Devisscher et al., 2020). While there is a dedicated SDG on urbanization and the urban as a 'living space' (SDG 11), rural areas are first and foremost represented in target 2. a. of SDG 2: Zero Hunger, which calls for rural development through investments in rural infrastructure to increase agricultural productive capacities (UN, 2020) and in SDG 15: Life on Land, which promotes terrestrial nature conservation with an emphasis on negative human agencies in rural areas such as poaching and agricultural expansionism. In other words, policymakers rarely consider the rural as a place in its own right, a space that people attach meaning to and value for many reasons other than their economic or alternatively conservation potentials and pitfalls and what they may mean for global and urban populations.

This exclusion of rural space as place from policy debates is especially visible where people leave - depopulating areas or vacating places. Policy and research frequently focus on what depopulation of some

areas means for already densely populated urban areas and how we keep the cities liveable. Here, the focus is often on compensating/repairing and perhaps slowing down the process, with the underlying assumption that rural depopulation is a law of nature and further urbanisation the obvious way forward (see Li et al., 2019). There is little recognition of any value that these depopulating areas might have as they are seen as vacated, weary of change, without any substantial socio-economic potential and, accordingly, without any notable immediate value to policymakers. This blind spot suggests the need for more research on depopulated areas to explore how those people who remain interact with their environments, how those who left continue to engage with vacated places and what this means for the role of depopulated areas in navigating (global) sustainability issues. In addition, we find lacking: 1) analyses of what depopulation means for the material and immaterial value of vacated areas in terms of social as well as political relations and the natural environment; and 2) a more comprehensive understanding of the consequences of depopulation for rural areas based on perspectives both from the Global South and Global North. Addressing these gaps may reveal the interests driving the transformations of depopulated areas as well as their potential to deal with today's global challenges.

This article proposes an agenda for research and a research framework based on the notion of place for investigating these neglected aspects of depopulation. We propose a three-pronged approach focussing on people, governance and nature to pay close attention to political, economic, and environmental transformations and what they mean for the value of depopulated rural areas by adopting concepts from sense of place and relating it to the specifics of vacated places. By doing so we not only aim to shed light not only on rural transformations but also on the potential of vacated places, their dynamics and abilities to respond to global crises.

2. Methodology

All authors have extensive professional and academic experience with rural depopulation, each in different locations and contexts across the globe, including the regions covered here (the Ecuadorian Amazon, New Zealand, and Island Melanesia). All are participants in an international academic exchange and collaboration programme that included the question how to identify actual and potential functions of depopulated areas for global sustainability challenges, as highlighted by the SDGs. To use the team members' individual expertise for developing a shared research agenda across different universities, the team considered two classic "consensus building methods": the Delphi Method and the Nominal Group Technique (NGT) (Delbecq et al., 1975). Both are well-tested and highly structured methods and serve different purposes. The probably better known Delphi Method goes through a sequence of steps with a large pool of anonymous experts to extract a consensus or convergence of opinion regarding a topic (Mukherjee et al., 2015). The NGT undertakes to achieve the same result and employs a comparably structured sequence of four distinct and carefully managed steps. It differs by engaging a smaller group of experts in face-to-face meetings to contour (rather than extract) a consensus. The NGT is often considered appropriate in "in areas in which no [or limited] empiric evidence exists" and where participating experts are also tasked to work with the findings (Foth et al., 2016, p. 113).

For these reasons, we chose the NGT approach as a methodology to determine the joint research agenda into the functions of depopulated areas – outlined in this paper. We followed the four steps of: firstly, the silent individual generation of ideas; secondly, a round-robin to share ideas in one-on-ones; thirdly, a plenary session of clarification of ideas; and then a vote and ranking exercise (see also: Harvey and Holmes, 2012; McMillan et al., 2016; Spencer, 2010). In this way, the three questions and three dimensions outlined below were identified. To test the external validity of these questions and dimensions – i.e. their validity in the Global North and the Global South – the authors then agreed each would apply them to a case study with which they were deeply

familiar as academics and/or professionals, merging their personal expertise with relevant literature.

2.1. A research agenda for vacating places

Recognising the dynamics of depopulated areas and moving beyond the image of rural places as empty, meaningless spaces, we build on notions of places and landscapes that have a recognition for complexity and a strong sociological embedding (see, for example, Arts et al., 2017; Bryant et al., 2011; Castree and Braun, 2001; Harrison et al., 2008; Massey 2005; Woods 2007) and that emphasize that these geographic spaces are in fact places: each a 'meaningful site' with a unique identity. Following Cresswell (2014) and Masterson et al. (2017), this approach combines location, the biophysical and ecological raw data of the space, with the social relations and emotions tied to a space, both among individuals and groups (Cresswell, 2014; Massey 2005). Place, and the connection between person and land that it entails, can be ontological, a form of "cultural representation" (Guo, 2003: 192) and the ground of a person's identity that is fundamentally tied to the historicity of the place as it is continuously made and remade through human and multispecies or more-than-human relations (Gegeo, 2001). In contrast, space is a realm without meaning, merely producing the basic coordinates of time (Cresswell, 2014). Local specific circumstances of places, consisting of social and timely and also biophysical elements, are then necessarily multi-faceted, multi-scalar and political. Socio-ecological interactions continuously shape the landscape and give value to a place (Masterson et al., 2017). Place meanings are politically situated. Places can be deemed unpopulated because they are rendered peripheral, because they are transformed by external factors, or because its residents are dehumanized (Bryant, 2011).

Accordingly, policymakers' choices, from prioritizing urban areas to framing rural areas primarily through their agricultural or biodiversity values to simply doing nothing about depopulation, are crucial for understanding processes of depopulation and how they shape rural places. However, it also means that research needs to pay closer attention to the meaning-making processes of those who stay and those who temporarily or permanently leave, and how their choices shape what happens to and in vacated rural places. Thus, we propose a place-based approach to depopulated spaces that emphasises that human agency causes – and responds to – the rapid rural transformations and ensuing sustainability challenges in depopulated areas in both the Global North and Global South. Such an approach raises two 'who?' questions that ask, 'who speaks?' and 'who benefits?', and one that asks, 'what is valued?' Fig. 1 captures these three questions, and the three dimensions they cover: people, governance, and nature. Implicit is the obverse: asking who does not speak or benefit, and what is not valued.

The first question is, 'Who has the legitimacy to speak for a place?' In relation to people, this question focuses on human connections and the meaning humans ascribe to places. New place meanings emerge as people move and the social makeup of places change—and even if places are completely vacated, they can remain as sites of "cultural representation" (Guo, 2003). Our goal is to develop a better understanding of how depopulation affects the 'sense of place' and, more broadly, its social restructuring over time by using insights from sociology, anthropology, and geography. This requires a consideration of both experiences of belonging and experiences of alienation, both positive and negative, as well as an analysis of social networks (Masterson et al., 2019).

In addition, this question recognises the political constructions of a place through these discursive practices and social interactions (Stokoswki, 2002). The legitimacy to speak for a place becomes particularly relevant in the context of depopulated places because these are often targeted by development initiatives, extractive industries or conservation attempts (Masterson et al., 2019). In this context we ask: What happens to the social value of places when people leave and how and to what extent, if at all, do places lose their meaning through
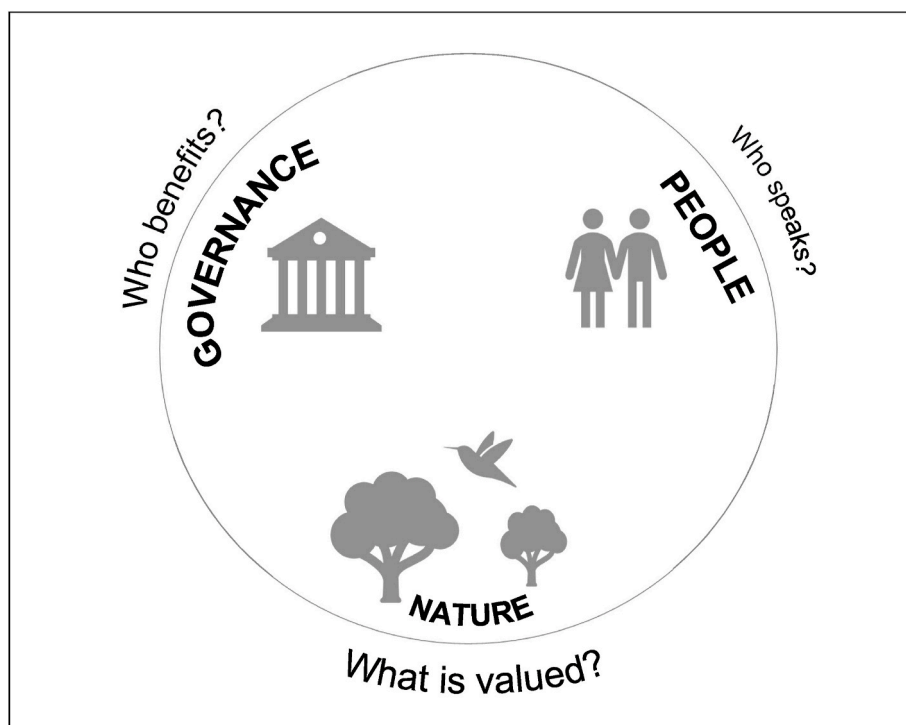
Fig. 1. A Place-based approach to depopulated places.

depopulation? How do people who remain respond to their increased marginalization (Rodriguez-Pose, 2018)? How are place meanings tied into ideas about original or legitimacy about the place? Which meanings are more powerful?

The second question explores the drivers for rural transformations – both intentional and accidental – by asking *cui bono?* or 'Who stands to gain from the transforming place?' The *cui bono* question is predominantly a governance question and seen as a multi-scalar and complex process, dynamically reshaped by human practices, without assuming a simple relationship between policy implementations and outcomes (Cleaver and de Koning 2015) and linked to the activities of policymakers. We recognise that in these dynamic reshaping processes uneven outcomes can occur (Cleaver and De Koning, 2015; Boelens, 2009; De Koning, 2014) that lead to power imbalances, marginalization of local people, resources or institutions (Blaikie, 2006). There have been various attempts to better understand the effects of policies on, for example, property resources by focussing on socio-historical or anthropological dimensions of the interactions between institutions and actors (Mosse, 1997; Roth, 2009). However, the challenge remains to acknowledge the full complexity and effects of institutions, particularly in the sense of who gains and who loses when it comes to the resources and nature associated with a place.

These two *who*-questions address human agency and are related. If the answers are properly aligned, meaning that the legitimate voices of the areas are the main beneficiaries of any governance intervention, we could argue that vacated places are rather resilient places with robust institutional framework in place and equal power balances. If they are not aligned and there is an uneven relationship, then vacated places are expected to experience marginalization and inequality. The alignment or divergence between these two answers then also has an impact on nature in these areas, which leads to the third question.

The third question explores the purpose or intention of human agency on nature or the biophysical and ecological characteristics of the depopulated place: 'What is valued?' Governance interventions that link nature or natural resources with development initiatives seldom consider the cultural, spiritual and personal values of nature for local people (Cocks et al., 2012; Bologna and Spierenburg, 2014; Henning,

2019). In this context, the economic value of nature is often emphasized over other, often local, values and meanings (Büscher and Dressler, 2007). We argue that a research agenda for depopulated places needs to go considerably further and consider, for example, to what extend these areas can become wilderness (Navarro and Pereira, 2015), how they may become more vulnerable to natural disasters and contribute to increased resource exploitation (Hecht et al., 2015), and how emotional linkages between people who left and the vacated places shape nature management (Bergstén and Keskitalo, 2018).

By posing these three questions in diverse contexts of depopulation and, crucially, how they interact with each other, the framework challenges *how* spaces and places transform, *how* we think about and engage with depopulation and, therefore, *what* we know about this process and its consequences for a sustainable, peaceful and prosperous future for the planet. Concretely, it will provide insights into the extent to which, if at all, depopulation may even be to the advantage of realizing food security, climate change mitigation, biodiversity; and, alternatively, how a failure to appropriately understand and address these vacated places may increase environmental vulnerabilities as well as food insecurity.

4. Illustrating the variety of place/space transitions

To illustrate what comes to our mind when thinking about depopulated or depopulating areas and rural transformation processes and place/space transitions, we provide three sketches where people vacating places impacts or transforms the unique sense of these places: an example of replacing people – where inhabitants of a place are replaced; an example of diluting local voice – where the local sense of place is diluted through governance arrangements or institutional amalgamation; and an example of transforming nature – where the biophysical transformation of a space affects the meaning of that place. Drawing from Global North and Global South we show different modes of vacating space and the consequences on legitimacy and beneficiaries while highlighting the applicability of this framework for both, often artificially separated, contexts.

4.1. Re-placing people: Ecuadorian colonization of the Amazon

In our first example, we explore re-placing in the Ecuadorian Amazon where the inhabitants and meaning of place have changed as a result of an influx of people into a vacated place. Place transforms to a new 'permanent' where old meanings collide with new meanings and where the legitimacy of the inhabitants become either resilient or marginalized. It challenges who defines place and whether it is vacant.

Between 1960 and 1980, agricultural reforms were one of the cornerstones of Ecuadorian development policies. These reforms sought to support Andean highland farmers in their struggle to find land. They focussed on amongst other things the colonization of land that under Ecuadorian law was considered "uncultivated" and "uninhabited" (Bromley 1981; Perreault, 2003) and that farmers could lay a claim to because of these characteristics. The extensive land and resource practices of the indigenous communities (such as the Shuar) in the Amazon were not seen as cultivating practices and the land was therefore largely regarded as uninhabited. The government accordingly set up large-scale colonization processes in the 1970s for Andean farmers to move into these lands (Blankstein and Zuvekas, 1973). By clearing the Amazon forest and creating pastures for their cattle, farmers secured their new land, resulting in one of the highest deforestation rates in the whole Amazon in the 1980s (De Koning, 2011; Southgate et al., 1991).

The agrarian reforms were primarily based on the idea of market-oriented development set out by the Ecuadorian government. The indigenous peoples already living in Amazon were perceived by migrant farmers as obstructing this quest for modernization and development (Valdivia, 2005). Migrant farmers denied the existence of an indigenous place inhabited based on subsistence systems and filled with socio-cultural meaning. Instead, the migrant farmers claimed this place as one of productivity, rich in valuable natural resources and now inhabited by Andean farmers. In other words, reforms and the colonization processes impacted strongly on the indigenous identity tied to the land. The negative connotation linked to customary practices of the inhabitants of the Amazon and the government supported colonization of the Amazon by Andean farmers produced conflicts and strained relationships between the indigenous communities, migrant farmers and the Ecuadorian government (Valdivia, 2005; Perreault, 2003; de Koning, 2011).

While the Ecuadorian government has adopted more inclusive policies and programmes for indigenous communities in the Amazon in the 1990s, the colonization period shows how much state intervention has impacted on the place identity. Many indigenous communities had to vacate their place which resulted in indigenous practices and culture becoming less and less visible or even disappearing. The social-cultural aspect of their place was reorganized as the dispersedly settled indigenous community resettled in so-called *centros,* each a group of houses around a central square often accessible by roads (see Rubenstein, 2001). The physical aspects of their place, the forest gardens and the socio-cultural elements that made up the Amazon were largely deforested and replaced by cattle farming (De Koning, 2011; Rudel et al., 2002). At the same time, cattle farming in the Ecuadorian Amazon has proven difficult. Meat prices were not stable, while logging – a decreasing yet important source of additional income – was made illegal. Interviews with migrant farmers in the period between 2007 and 2009 in the province of Morona Santiago revealed that farming in the Ecuadorian Amazon was challenging and income was low (de Koning, 2011). Many farmers, unused to the region's weather conditions, suffered from poor health and, with many high-value trees already cut, few income possibilities remained. Some settlements are slowly and steadily becoming ghost towns as the young people move out, creating new vacated places in the Ecuadorian Amazon.

When answering the question on who speaks, we, thus, find the loudest voice speaking for the Amazon region is the voice of the market-oriented immigrant farmers telling initially of their aspirations and now their struggles. However, the voice of indigenous communities, although marginalized, seems to be regaining volume. Many indigenous communities have become engaged with the national political systems and have organized themselves in those areas of the Amazon that have remained indigenous territory (Rubenstein, 2001). Arguably, the Amazon space has become divided into two places; one spoken for by the immigrant farmers, the other by indigenous communities. Moreover, it must be noted that the divide, the boundaries, are not set. Over time, indigenous communities lost places to speak for to immigrant farmers, but as changing ecological dynamics turn immigrant places into ghost towns, it remains to be seen who get to speak for those vacated places: the ones who most recently left the place, or the ones who came before?

Second, we ask who gains from this re-placing? Over the years and through changing legislation, market-oriented agricultural practices were stimulated by the government, benefitting the migrant Andean farmers who were able to obtain land titles and loans in the Amazon region. Migrant farmers still have an important say in the debates on development policies and cattle farming remains a widespread agricultural practice in the Amazon. However, more inclusive policies focussing on, for example, small scaled forest management and indigenous land rights have somewhat improved the situation of the indigenous communities. Nevertheless, the Ecuadorian government appears to have benefitted the most from replacing Amazonian people by increasing its control over the land and revenues from selling the natural resources. This benefit is even more apparent with the government's current pushes to open the Amazon for exploiting its oil and gas.

The third question, asking what is valued in the changes in Ecuador's Amazon region, also focuses directly on the Ecuador government. Its intentions driving the change processes were clearly to expand the country's market-oriented agricultural systems – and the Andean farming communities practising it – into the place hitherto shaped by subsistence systems benefiting its indigenous communities. The economic value of the Amazon, further increased by the discovery of oil and gas, has become a vital component of Ecuadorian development policies, resulting in a strategy favouring resource extraction over indigenous values. Despite the formation of indigenous political organizations and some successful court cases over land rights, the social, spiritual place values of the indigenous communities are seldomly considered and the relationship between migrant cattle farmers and indigenous communities remain strained. Migrant farmers themselves also feel less valued as they have run out of resources to extract and struggle with the unstable economy of Ecuadorian beef cattle. This abeyance creates a particularly uncertain situation for the Ecuadorian Amazon where ancestral, indigenous values are still present but marginalized and migrant farmers values seem to be losing to the government's interest in resource extraction.

4.2. Diluting local voice: local government amalgamation in provincial New Zealand

Our second example shows how administrative amalgamation as a response to a reducing population has changed who speaks for a place. In it we see a transition from (comparatively) many voices for a small area to a few voices for a much larger one.

The formation of New Zealand's rural landscape is a story of transition in land-cover and land-use over the last 150 years as European settlers converted temperature rainforest and tussock grasslands to European pasture and imposed European farm systems on it, producing primarily for export. The mode and intensity of these farming activities have transformed in response to changing technologies, international economic conditions and national government responses to those conditions, and political philosophies that determined whether particular rural land-uses and activities should be supported by the state or not (Le Heron and Pawson, 1996; Connelly and Nel, 2016; Pomeroy, 2019).

Although the drivers have changed, the trajectory over the last century has been one of ongoing rural depopulation as rural inhabitants died or moved to towns and cities, together with the loss of services and

facilities (e.g. Glendining, 1978). Population loss has been spatially uneven; rural centres (populations between 300 and 1000) have suffered much more than rural districts (1000–10,000) and hitting those more distant from major population centres particularly hard (Glendining, 1978; Cant, 1980; Conolly and Nel, 2016; Pomeroy, 2019).

Mauriceville, one of several Scandinavian settler centres in the Wairarapa region of New Zealand's lower North Island, is such an example. Unlike larger Eketāhuna 23 km to the north or the country town of Masterton to the south, the rural centre, really two small and closely-connected settlements of Mauriceville West and Mauriceville East, has not thrived following settlement in 1872 (Friends of Mauriceville). The indigenous Maori Rangitāne and Ngāti Kahungunu tribes had sparsely settled in the Wairarapa after migrating from further north in the 1600s and the land around Mauriceville had been purchased by the government from the Rangitane Iwi as part of a larger farm development programme (Schrader, 2007). The settlers cleared the temperate rainforest to establish small dairy farms that supplied the Mauriceville West butter factory. Shortly after, a lime works was established in Mauriceville East. It was soon connected by rail to the nearest town, Masterton, 22 km to the south, and to others further north (Grant, 1995). As the community's networks increased in complexity, Mauriceville thrived, with some 1130 inhabitants at its peak around 1900, supporting sports and cultural clubs, two churches and two schools and a hotel (Anon, 1897; Statistics New Zealand, 1902).

Yet its economic and social landscape simplified over the last century. Reflecting wider C20 trends (Connelly and Nel, 2016; Pomeroy, 2019), the Mauriceville's dairy farms each of about 30 cows were progressively amalgamated so that today far fewer operate with herds of 500 animals, some with over 1000, while others converted to dry-stock. Many people moved away for jobs. The railway station and warehouse have disappeared. The Mauriceville East hotel was replaced by a dairy factory in 1926 that took over and expanded the Mauriceville West plant's production. Production peaking in 1937, it closed in 1962, one of over 100 dairy factories and creameries in the Wairarapa eventually replaced by a single plant near Pahiatua (Christensen, 2002) enabled by widespread dairy industry use of milk tankers to transport milk from farm to factory. The community also thinned, sports matches between Mauriceville East and Mauriceville West are long gone, while other social clubs also disappeared (Flavell, 2013). The Mauriceville West School closed in 1972, the Lutheran Norwegian church was deconsecrated in 2019, only its settler cemetery remaining. Today some 130 people live in the area.

The area's pastoral landscape and economic base remains. Although farms are much larger than before, the land has not reverted to forest. The lime-works continues to operate. Only a basic community service, the three-teacher school, remains. The closed Mauriceville West school and church, and the cemetery remain as cultural features, markers of a past. Other remnants are intangible. Most of Mauriceville West's houses have disappeared, the land is now undifferentiated pasture, though individual land titles remain on the cadastral map.

Recently, Mauriceville faced the possibility of partially disappearing when it was shortlisted in 2013 as a possible site for a regional water storage scheme. The planned irrigation scheme is intended to increase agricultural productivity in the Wairarapa and is expected to create 8850 jobs in the region. It is also justified on the grounds of mitigating the predicted increase in summer droughts resulting from climate change. The project is supported by the three Wairarapa territorial authorities, the regional council and central government. The Mauriceville option would have flooded farmland and seven houses as well threatening the Lutheran church cemetery. The need to preserve the cemetery as a cultural heritage marker ruled it out of contention (Tonkin and Taylor, 2013).

When exploring the first question of 'Who speaks?', we find progressively fewer people are politically empowered to speak for Mauriceville as its population shrank, while those that do speak on its behalf have become increasingly remote from it as a result of amalgamating governance arrangements. These amalgamations have been driven by concerns about the community's ability to pay for infrastructure. Originally a Road District, Mauriceville became a county council in 1889 with nine councillors. It sought periodically to amalgamate with the Masterton County Council (MCC) as it sought to share the costs of maintaining its rural roads. Masterton County was only persuaded to amalgamate in 1965, incentivised by a central government financial inducement via the National Roads Board. It was represented by three, then two, of the 12 councillors on the MCC. The MCC subsequently amalgamated to become part of the much larger Masterton District Council of 23,300 inhabitants as part of the national government's 1989 local government reforms. Mauriceville's interests were first represented by the six councillors in the district's rural ward, all elected at large as part of the 15 member council. The number of councillors were subsequently reduced, with only one rural seat retained. Today none of the councillors live in or near Mauriceville.

Next, when it comes to the question 'Who benefits?', it is clear that the primary beneficiaries of Mauriceville's depopulation are those farmers able to buy up smaller, less economic farms. In doing so, they are able gain economies of scale from increasing farm size. They may also have been able to purchase this land cheaply; the smaller farms uneconomic as stand-alone enterprises, and unattractive to outside purchasers who lack the scope to scale up. Those remaining have also benefitted from the ongoing maintenance of their roads, funded by the Masterton District Council's much larger rates (land-tax) base. Just as Pomeroy (2019) observes in other parts of New Zealand, the institutional structures privilege those responsible for producing much of the country's export income, but marginalise Maori, women and the non-farm sectors of rural society.

More broadly, if the water storage scheme is to go ahead in another form, the wider Wairarapa region will benefit from Mauriceville's depopulation through resulting economic growth driven by agricultural intensification. Existing land-owners will also benefit from intensification as well as from capital gains as land prices appreciate to reflect this increased productivity. Even if Mauriceville will not now be adversely impacted by the scheme, another small community in the region, possibly little different to it, likely will.

As for the question, 'What is valued?', Mauriceville's farm amalgamation and depopulation shows New Zealand values farming as a productivist activity, prioritizing economic extraction, rather than as an element that supports wider rural social cohesiveness and identity. Similarly, institutional amalgamation has sought economic and administrative efficiencies at the price of local democracy, drivers for wider New Zealand reform that have councils more as boards than local governments. Yet, some cultural artefacts are valued. Although the church has been deconsecrated, its cemetery has heritage value for the wider Scandinavian identifying community in New Zealand. This value helped saved the place from inundation.

4.3. Transforming biophysical features: the Carteret Islands

Our final example, the struggle of the Pacific's Carteret Islanders – often called the world's first climate change refugees (Vidal, 2005) – comprises dynamics where human activity transforms biophysical features that turn an inhabitable place into an uninhabitable space. The Carteret Islands lie 90 km northeast of Buka Island, part of the Bougainville Autonomous State of Papua New Guinea. The 2700 Carteret Islanders have long struggled with a loss of coastal land, soil fertility, and salinization, but human-induced sea level rise accelerates these processes and the islands will soon become unhabitable.

According to their oral history, today's islanders are the conquerors of the Carteret Islands displacing the original inhabitants in the 17th century following several invasions. They originate from Buka Island, some 80 km to the south-west and the second largest island in today's Bougainville (Rakova, 2014: 269). Carteret Islanders have always maintained a connection to Buka Island as their ancestral home of

origin. As elsewhere in the Pacific, migration has long been integral to livelihoods. "In precolonial times, islands achieved sustainable development partly through extended geographical ties … to secure social relations and claim and use land elsewhere" (Connell, 2015: 14). Moreover, the regional mobility was often predicated on "'anchor populations' at home, as a form of 'homeland security'" (Connell, 2015: 22).

In this context, Carteret Islanders have a long history of attempting to return to and resettle on the mainland, with attempts characterized as driven by climate change – in collaboration with metropolitan partners including international NGOs, media, and UN bodies – being only the most recent. Australian colonial officers visiting the islands in the 1950s recorded that the islanders suffered from shortages of food and water and that "heavy seas have devastated garden land" (O'Collins, 1990: 125). When other colonial officers consulted Carteret Islanders in the 1960s, they found islanders were unanimous in a desire to resettle on Buka Island. The Catholic Mission then made a first, failed, attempt to facilitate a resettlement in the 1960s (Connell and Lutkehaus, 2017: 87). Similar attempts to relocate varying numbers of families were made in 1984, in 1997, and in 2009, with the assistance of a range of donor agencies (Edwards, 2013).

Some of the latter efforts resulted in the resettlement of families, though these successes were largely temporary. The resettlement projects struggle or floundered over conflicts over fishing and land use between the islanders and the local communities in the places to which the Catholic Mission or Bougainville authorities wanted to facilitated islanders' resettlement (Dannenberg et al., 2019). In effect, many families eventually returned to the Carteret Islands; their place still controlled by those who had never left. None of these efforts, thus, resulted in any noticeable exodus from the Carteret Islands. On the contrary, since the 1980s, the population has quadrupled (UNDP, 2016: 4) further increasing the pressure to succeed with resettlement attempts because of climate change.

While resettlement attempts struggle or fail, it seems inevitable that the Carteret Islanders will succeed in resettling. Elsewhere, on the Mortlock Islands about 240 km northeast of Buka Island, islanders find themselves in the same situation and most islanders have already relocated. A small anchor population of about a hundred, however, remains on the Mortlock Islands: "The old people who are keeping everything safe for us," one islander noted (Blades, 2016). Against this backdrop, we now turn to the three questions.

First, who speaks for the disappearing Carteret Islands? While we were unable to locate any records that discuss official, government, views on this matter, local voices on the matter are clear. In October 2018, we interviewed Ursula Rakova, spokesperson for the Islanders' Council of Elders. Reflecting broader Pacific perspectives on community ownership over seascapes or rather "land-covered-by-sea" as equivalent to "land (-not-covered-by-sea)" (see Akimichi, 1991), Ursula Rakova was unequivocal about her community's continued right to speak for the islands. "Even if the sea submerges the islands, the bones of our ancestors will still be there". Moreover, the islanders already challenge any potential decisions the government may make regarding the remaining reef once the community has left. "The government does not own it … It's our inheritance, it's our life. And no-one has any right to take that away from us. Not even the government of Bougainville, not some rich mining companies, not even a five-star hotel company that has so much money."

When it comes to the second question, it is not entirely clear who will benefit when the Carteret Islands eventually cease to have permanent human settlement. What is clear, however, is that the state of PNG may lose its claim to the Exclusive Economic Zone associated with the Carteret Islands because the international law states: "Rocks which cannot sustain human habitation or economic life of their own shall have no exclusive economic zone or continental shelf" (UN, 1982: p. Art. 121.123). In terms of benefitting from the local resources, Rakova commented in 2018 that while her community may eventually no longer live on the islands, the local resources remain theirs: "In, let's say 20–30

years' time, we will still go and fish on that reef". However, she also acknowledged that once her community no longer lives on the island, other fishing communities may challenge that claim. "If we don't have proper surveillance yes, there will be people coming. But if we have good surveillance, nobody should have any rights to fish there."

Answers to the third question – What is valued once the Carteret Islands turn into an uninhabited reef? – are multi-scalar. The Carteret Islanders clearly value the reef's fishing resources. In addition, they have started lobbying for the islands to be declared a Marine Protected Area under national law, merging science-based management with their Indigenous management systems (UNDP, 2016: 11). For the Bougainville Autonomous State, the islands are likely to develop value in terms of asserting the boundaries of its Exclusive Economic Zone; even though uninhabited rocks do not qualify as a marker, it may be argued that the international 1982 law needs 'climate change adaptation' for islands where climate change forced inhabitants to leave. Rakova hinted at the island's value as a territory when she suggested in 2018 that government invest in "something like a lighthouse". In addition, her emphasis on the islands as a burial site for islanders' ancestors highlights their continued cultural significance, considering especially the role that ancestral relations and genealogy play in Melanesian valuation of place (see Gegeo, 2001). As Borut Telban notes, "people [across Melanesia] perceive their spatial existence not only in terms of being *in* places but more importantly in terms of being *of* places" (Telban, 2019: 496), be they currently inhabited or not.

5. Discussion and conclusion

Looking at these three examples of place transformations we find a few common or recurring threads that speak to our research agenda on depopulated areas. First, perhaps unsurprisingly, it seems that an appreciation of the importance of temporality in finding answers to the three questions of, 'Who speaks?'; 'Who benefits?'; and 'What is valued?' The three examples show clearly that history and flux provide the momentum – but not necessarily the direction – for driving the transformation processes. We identified how Ecuador government's colonization of the Amazon space by Andean farmers marginalized and displaced the resident Indigenous communities, but as the agricultural colonization degraded ecological balances, the colonizers seem to retreat while indigenous voices remain marginalized yet are resurging, leaving the future of their place uncertain. We also showed how depopulation in rural New Zealand has been an up-and-down process over 150 years, whereby administrative amalgamation can ultimately leave inhabitants in depopulating villages without local political representation speaking for them, which sees it lose public services or even be deliberately inundated as a water storage facility. Depopulation of Oceania's Carteret Islands due to sea-level rise is also a process driven by events that took place more than three centuries ago and that continue to shape debates and conflicts surrounding rights to land, in this case, in the place that was initially left behind, Buka Island.

A second thread that became visible in the examples of place transformations or depopulation is the importance of human agency. We found that human agency not only matters in determining what happens, but also – and somewhat surprising to us – very strongly in justifying what happens when change processes appear. In these instances, change processes were found to be driven by *force majeure*. In two of our cases we found post facto that *force majeure* is used as an alibi to effect changes that privilege particular interests. In two cases, climate change is used: the Carteret Islanders are seeking to reclaim a place on the mainland; and the proposed water irrigation scheme in Mauriceville West appropriates the farmland to benefit. While Mauriceville was spared, another rural and depopulated site, little different, will not be. While the term *force majeure* is not applicable to the Ecuadorian case, the particular interpretation of the government of what is needed to develop Ecuador has driven specific changes leading to more control over the land and its inhabitants and the favouring of one community over the

other.

A third thread emerging from the examples regards the question 'Who speaks?' The Ecuadorian Amazon represents a more classical image of dispersed indigenous communities being replaced by more productive farmers in an area considered as vacant by the government. In a sense this is an example of a 'tyranny of the powerful'. Mauriceville illustrates a 'tyranny of the majority'. As a place is being vacated, the place has progressively less voice, which is diluted among formal representatives who are required to speak for larger and larger areas. However, rural depopulation processes do not inevitably travel along the same route; we would reiterate that history and flux provide the momentum – but not necessarily the direction. We need to contrast the example of a depopulating Mauriceville's loss of voice with the example of a depopulating Wallis and Futuna gaining disproportional voice. Wallis and Futuna is an overseas territory of France in the South Pacific with a small and declining population; from 14,944 in 2003 to 11,558 in 2018. Nevertheless, it is over-represented politically in Paris, having one of 348 senators in the French Senate and one of 577 deputies in the French National Assembly – over ten times more than if proportionately apportioned by population.

Looking forward, we believe the proposed three-pronged research agenda – Who speaks? Who benefits? What is valued? – can assist policy-making around depopulated or depopulating spaces in national and in regional planning. We argue that this research agenda is a necessary counterweight to the global emphasis on urban areas and on rural areas as, first and foremost, servicing global and urban goals surrounding agriculture and conservation. The Sustainable Development Goals not only reflect this emphasis in their dedicated commitment to cities (SDG 11) and their primary engagement with the rural as a potential source of food security (SDG 2) and terrestrial conservation (SDG 14), but they also completely disregard depopulation. Of the 17 goals, 169 targets, and 230 indicators that promise to cover every conceivable relevant area of policy-making for a sustainable future, not a single one refers to 'depopulation' or 'depopulated' as if this particular process is of no significance to governance, people and nature. We argue that this has created a major blind spot in global policymaking, and it is urgently necessary to pay more attention to vacating and vacated places as meaningful sites full of potential for biodiversity conservation, food production and sustainable development.

Aside from the question whether the urban-rural dichotomy is meaningful or hierarchical in the first place (e.g., can the former be imagined without the latter?), it does not really matter if analyses suggest rural depopulation is an added benefit of a deliberate political project or collateral damage of inevitable post-capitalist processes. What matters is that urbanisation, climate change, socio-economic developments and other factors are gradually leaving large and growing places devoid of inhabitants with a voice and benefit in their place. As such, rural depopulation poses a series of questions or challenges to policy-makers, planners, *and* the few remaining people or the last people vacating a place, as well as their former residents, be they the politically displaced indigenous communities of Ecuador or the climate refugees of the Carteret Islands: Who dominates governance of a space that once was a place or a place that has been vacated but that remains meaningful to the people that left? If the state or a community withdraws from a place, what groups step in to give new meaning to the space, turning it into place again? What are the power bases upon which different parties cooperate and compete in giving meaning to a vacated space? What are the social and environmental consequences of processes of transformation for a vacated place? What are the abilities of a vacated place to address global challenges?

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jrurstud.2021.01.026.

References

Akimichi, T., 1991. Sea tenure and its transformations in the lau of north malaita, Solomon Islands. S. Pac. Stud. 12 (1), 7–22.

Anon, 1897. Mauriceville. *The Cyclopedia of New Zealand [Wellington Provincial District]*. The Cyclopedia Company Ltd, Wellington.

Arts, B., Buizer, M., Horlings, L., Ingram, V., van Oosten, C., Opdam, P., 2017. Landscape approaches: a state-of-the-art review. Annu. Rev. Environ. Resour. 42, 439–463.

Austin, E.K., Rich, J.L., Kiem, A.S., Handley, T., Perkins, D., Kelly, B.J., 2020. Concerns about climate change among rural residents in Australia. J. Rural Stud. 75, 98–109.

Bergstén, S., Keskitalo, E.C.H., 2018. Feeling at home from a distance? How geographical distance and non-residency shape sense of place among private forest owners. Soc. Nat. Resour. 32 (2), 184–203.

Blades, J., 2016. The Bougainville Outlier Whose People Are Leaving. RNZ. https://www.rnz.co.nz/international/pacific-news/314587/the-bougainville-outlier-whose-people-are-leaving.

Blankstein, C.S., Zuvekas Jr., C., 1973. Agrarian reform in Ecuador: an evaluation of past efforts and the development of a new approach. Econ. Dev. Cult. Change 22 (1), 73–94.

Bock, Bettina B., 2018. Rural Futures: Inclusive rural development in times of urbanisation. Wageningen University & Research, Wageningen. https://edepot.wur.nl/465253.

Boelens, R., 2009. The politics of disciplining water rights. Dev. Change 40 (2), 307–331.

Bologna, Sarah A., Spierenburg, Marja, 2014. False Legitimacies: The Rhetoric of Economic Opportunities in the Expansion of Conservation Areas in Southern Africa. In: van der Duim, René, Lamers, Machiel, van Wijk, Jakomijn (Eds.), Institutional Arrangements for Conservation, Development and Tourism in Eastern and Southern Africa. Springer, Dordrecht, pp. 119–137.

Bromley, R., 1981. The colonization of humid tropical areas in Ecuador. Singapore J. Trop. Geogr. 2 (1), 15–26.

Bryant, R.L., Paniagua, A., Kizos, T., 2011. Conceptualising 'shadow landscape' in political ecology and rural studies. Land Use Pol. 28 (3), 460–471.

Büscher, B., Dressler, W., 2007. Linking neoprotectionism and environmental governance: on the rapidly increasing tensions between actors in the environment-development nexus. Conserv. Soc. 5 (4), 586–611.

Cant, G., 1980. Rural depopulation: patterns and processes. In: Cant, G., Bennett, P. (Eds.), People and Planning in Rural Communities, Studies in Rural Change, vol. 4. Department of Geography, University of Canterbury, Christchurch, pp. 3–14.

Castree, N., Braun, B. (Eds.), 2001. Social Nature: Theory, Practice, and Politics. Blackwell, Oxford.

Christensen, J., 2002. *Grassroots Business : a Record of Wairarapa Dairy Factories*: Mt. Bruce Colonial Museum.

Cleaver, F., De Koning, J., 2015. Furthering critical institutionalism. Int. J. Commons 9 (1), 1–18.

Cocks, M.L., Dold, T., Vetter, S., 2012. 'God is my forest': Xhosa cultural values provide untapped opportunities for conservation. South Afr. J. Sci. 108 (5–6), 52–59.

Connell, J., 2015. Vulnerable islands: climate change, tectonic change, and changing livelihoods in the Western Pacific. Contemp. Pac. 27 (1), 1–36.

Connell, J., Lutkehaus, N., 2017. Environmental Refugees? A tale of two resettlement projects in coastal Papua New Guinea. Aust. Geogr. 48 (1), 79–95.

Connelly, S., Nel, E., 2016. New Zealand: restructuring of the New Zealand economy: global-local links and evidence from the west coast and southland regions. In: Halseth, G. (Ed.), Transformation of Resource Towns and Peripheries : Political Economy Perspectives. Routledge, Taylor & Francis Group.

Cresswell, T., 2014. Place : an Introduction. John Wiley and Sons, Hoboken, UK (Incorporated).

Dannenberg, A.L., Frumkin, H., Hess, J.J., Ebi, K.L., 2019. Managed retreat as a strategy for climate change adaptation in small communities: public health implications. Climatic Change 153 (1–2), 1–14.

De Koning, J., 2011. Reshaping Institutions: Bricolage Processes in Smallholder Forestry in the Amazon. PhD Thesis. Forest and Nature Conservation Policy, Wageningen University & Research.

De Koning, J., 2014. Unpredictable outcomes in forestry—governance institutions in practice. Soc. Nat. Resour. 27 (4), 358–371.

Delbecq, A., Van de Ven, A., Gustafson, D., 1975. Group Technique for Program Planning: A Guide to Nominal Group and Delphi Processes. Scott, Foresman and Company, Glenview, ILL.

Devisscher, T., Konijnendijk, C., Nesbitt, L., Lenhart, J., Salbitano, F., Cheng, Z.C., Lwasa, S., van den Bosch, M., 2020. SDG 11: sustainable cities and communities – impacts on forests and forest-based livelihoods. In: Katila, P., Pierce Colfer, C.J., de Jong, W., Galloway, G., Pacheco, P., Winkel, G. (Eds.), Sustainable Development Goals: Their Impacts on Forests and People. Cambridge University Press, Cambridge, pp. 349–385.

Edwards, J.B., 2013. The logistics of climate-induced resettlement: lessons from the Carteret Islands, Papua New Guinea. Refug. Surv. Q. 32 (3), 52–78.

Flavell, M.K., 2013. Rainbows over Mauriceville: Early Days in a Scandinavian-Kiwi Community. Friends of Mauriceville, Masterton.

Foth, T., Efstathiou, N., Vanderspank-Wright, B., Ufholz, L.-A., Dütthorn, N., Zimansky, M., Humphrey-Murto, S., 2016. The use of Delphi and Nominal Group Technique in nursing education: a review. Int. J. Nurs. Stud. 60, 112–120.

Friends of Mauriceville. Scandinavian trail. Retrieved from. http://scandinaviantrail.org.nz/.

Gegeo, D.W., 2001. Cultural rupture and indigeneity: the challenge of (re)visioning 'place' in the Pacific. Contemp. Pac. 13 (2), 467–507.

Glendining, D., 1978. Why Did They Leave Eketahuna? A Report on a Study of Outward Migration, Conducted by the Wairarapa Education and Rural Services Committee. Wairarapa EARS Committee, Masterton.

Grant, I.F., 1995. *North of the Waingawa : the Masterton Borough And County Councils, 1877-1989*: Masterton, N.Z. Masterton District Council.

Guo, P., 2003. 'Island builders': landscape and historicity among the langalanga, Solomon Islands. In: Stewart, P.J., Strathern, A. (Eds.), Landscape, Memory and History: Anthropological Perspectives. Pluto Press, London, pp. 189–209.

Harrison, J., 2008. Confronting invisibility: reconstructing scale in California's pesticide drift conflict. In: Goodman, M.K., Boykoff, M.T., Evered, K.T. (Eds.), Contentious Geographies: Environmental Knowledge, Meaning, Scale. Ashgate, Aldershot, pp. 115–130.

Harvey, N., Holmes, C.A., 2012. Nominal group technique: an effective method for obtaining group consensus. Int. J. Nurs. Pract. 18 (2), 188–194.

Hecht, S., Yang, A.L., Basnett, B.S., Padoch, C., Peluso, N.L., 2015. *People In Motion, Forests In Transition: Trends In Migration, Urbanization, and Remittances And Their Effects On Tropical Forests* Occasional Paper 142. CIFOR, Bogor Barat.

Henning, B.M., 2019. Western conservation in Melanesia: biodiversity conservation for whom, by whom, and according to whom? In: Hirsch, E., Rollason, W. (Eds.), The Melanesian World. Routledge, London, pp. 532–545.

Hogan, J., 2004. Constructing the global in two rural communities in Australia and Japan. J. Sociol. 40, 21–40.

Le Heron, R.B., Pawson, E. (Eds.), 1996. Changing Places : New Zealand in the Nineties. Longman Paul, Auckland.

Li, Y., Westlund, H., Liu, Y., 2019. Why some rural areas decline while some others do not: an overview of rural evolution. J. Rural Stud. 68, 135–143.

Lynch, K., 2005. Rural-Urban Interaction in the Developing World. Routledge, London.

Masterson, V.A., Stedman, R.C., Enqvist, J., Tengö, M., Giusti, M., Wahl, D., Svedin, U., 2017. The contribution of sense of place to social-ecological systems research: a review and research agenda. Ecol. Soc. 22 (1), 49.

Masterson, V.A., Spierenburg, M., Tengö, M., 2019. The trade-offs of win–win conservation rhetoric: exploring place meanings in community conservation on the Wild Coast, South Africa. Sustainability Science 14 (3), 639–654.

Masterson, V., Tengö, M., Spierenburg, M., 2017. Competing place meanings in complex landscapes: a social–ecological approach to unpacking community conservation outcomes on the Wild Coast, South Africa. Soc. Nat. Resour. 30 (12), 1442–1457.

Massey, D., 2005. For Space. Sage, London.

McMillan, S.S., King, M., Tully, M.P., 2016. How to use the nominal group and Delphi techniques. Int. J. Clin. Pharm. 38 (3), 655–662.

Mosse, D., 1997. The symbolic making of a common property resource: history, ecology and locality in a tank-irrigated landscape in south India. Dev. Change 28 (3), 467–504.

Mukherjee, N., Hugé, J., Sutherland, W.J., McNeill, J., Van Opstal, M., Dahdouh-Guebas, F., Koedam, N., 2015. The Delphi technique in ecology and biological conservation: applications and guidelines. Methods in Ecology and Evolution 6 (9), 1097–1109.

Navarro, L.M., Pereira, H.M., 2015. Rewilding abandoned landscapes in Europe. In: Pereira, H.M., Navarro, L. (Eds.), Rewilding European Landscapes. Springer, Cham, pp. 3–23.

O'Collins, M., 1990. Carteret islanders at the Atolls Resettlement Scheme: a response to land loss and population growth. In: Pernetta, J.C., Hughes, P.J. (Eds.), *Implications of Expected Climate Changes In the South Pacific Region: an Overview*, UNEP Regional Seas Reports and Studies. UNEP, Nairobi, pp. 116–126 (Nairobi: UNEP).

Perreault, T., 2003. Making space: community organization, agrarian change, and the politics of scale in the Ecuadorian Amazon. Lat. Am. Perspect. 30 (1), 96–121.

Pomeroy, A., 2019. Insights from past and present social science literature on the (unequal) development of New Zealand's rural communities. N. Z. Geogr. 75 (3), 204–215.

Rakova, U., 2014. The sinking Carteret Islands. Leading change in climate change adaptation anf resilience in Bougainville, Papua New Guinea. In: Leckie, S. (Ed.), Land Solutions for Climate Displacement. Routledge, London, pp. 268–290.

Rodriguez-Pose, A., 2018. The revenge of places that don't matter (and what to do about it). Camb. J. Reg. Econ. Soc. 11 (1), 189–209.

Roth, D., 2009. Property and authority in a migrant society: Balinese irrigators in Sulawesi, Indonesia. Dev. Change 40 (1), 195–217.

Rudel, T.K., Bates, D., Machinguiashi, R., 2002. Ecologically noble Amerindians? Cattle ranching and cash cropping among Shuar and colonists in Ecuador. Lat. Am. Res. Rev. 37 (1), 144–159.

Rubenstein, S., 2001. Colonialism, the shuar federation, and the Ecuadorian state. Environ. Plann. Soc. Space 19 (3), 263–293.

Schrader, B., 2007. Wairarapa Region - Māori Settlement', *Te Ara - the Encyclopedia Of New Zealand*. http://www.TeAra.govt.nz/en/wairarapa-region/page-5.

Spencer, D.M., 2010. Facilitating public participation in tourism planning on American Indian reservations: a case study involving the Nominal Group Technique. Tourism Manag. 31 (5), 684–690.

Southgate, D., Sierra, R., Brown, L., 1991. The causes of tropical deforestation in Ecuador: a statistical analysis. World Dev. 19 (9), 1145–1151.

Statistics New Zealand, 1902. Results of a Census of the Colony of New Zealand Taken for the Night of the 31st March, 1901. Retrieved from. https://www3.stats.govt.nz/historic_publications/1901-census/1901-results-census/1901-results-census.html?_ga=2.192452778.1093208676.1590631676-1181633375.1590631676.

Telban, B., 2019. Places and paths in Melanesian landscapes. In: Hirsch, E., Rollason, W. (Eds.), The Melanesian World. Routledge, London, pp. 487–500.

Tonkin and Taylor, 2013. Wairarap Water Use Project: Scheme Options Identification and Analysis. Summary Report. Greater Wellington Regional Council, Wellington.

UN, 1982. *United Nations Convention On the Law Of the Sea* (UNCLOS). United Nations General Assemby, New York. Retrieved from. https://www.un.org/depts/los/convention_agreements/convention_overview_convention.htm.

UNDP, 2016. Tulele Peisa, Papua New Guinea. UNDP (United Nations Development Programme), New York. Retrieved from. https://www.equatorinitiative.org/wp-content/uploads/2017/05/Tulele-Peisa-PNG_Page_01.png.

UN, 2020. Rural Development. Retrieved from. https://sustainabledevelopment.un.org/topics/ruraldevelopment.

Ubarevičienė, R., van Ham, M., 2017. Population decline in Lithuania: who lives in declining regions and who leaves? Regional Studies, Regional Science 4 (1), 57–79.

Valdivia, G., 2005. On indigeneity, change, and representation in the northeastern Ecuadorian Amazon. Environ. Plann. 37 (2), 285–303.

Van der Ploeg, J., Roep, D., 2003. Multifunctionality and rural development: the actual situation in Europe. In: van Huylenbroeck, G., Durand, G. (Eds.), Multifunctional Agriculture: A New Paradigm for European Agriculture and Rural Development. Ashgate, Hampshire, pp. 37–53.

Vidal, J., 2005. Pacific Atlantis: First Climate Change Refugees. The Guardian. https://www.theguardian.com/environment/2005/nov/25/science.climatechange.

Woods, M., 2007. Engaging the global countryside: globalization, hybridity and the reconstitution of rural place. Prog. Hum. Geogr. 31 (4), 485–507.