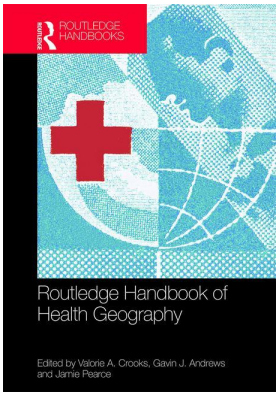

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THE GEOGRAPHIES OF INDIGENOUS HEALTH

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The geographies of Indigenous health is a relatively new sub-discipline of critical human geography. The fields of health geography and Indigenous geography explicitly influence this emerging research area, as both have identified the need for research to examine the complex and changing relationship between Indigenous peoples' health and the environment. Key questions asked by researchers in this area of health geography include: How is the health and well-being of Indigenous peoples and communities shaped by the environments within which they live? What *processes* are affecting the health and environments of Indigenous peoples, and how so? And can Indigenous engagement in research support positive change for Indigenous well-being and environmental protection? While the field of health geography has provided important theoretical frameworks for exploring the complexity of health and its multiple inter-related determinants, including the ways health may be shaped by current and historical processes (Kearns and Gesler, 1998; Luginaah, 2009), Indigenous geography supports a methodological imperative that places Indigenous communities and their concerns at the forefront of research about Indigenous health determinants, most particularly those related to the environment and processes of environmental change (Coombes et al., 2011; Herman, 2008; Louis, 2007). This relatively new area of study garnering attention among geographers from around the world has its roots in the Canadian experience. This chapter places emphasis on the ways Canadian scholars have informed the development and growth of this field and on the ways it has been taken up globally.

We begin with a short discussion on the importance of Indigenous knowledge frameworks for understanding the connections between Indigenous peoples, their health, and the land, providing a short analysis of Indigenous health disparities as well as the processes that have contributed to these inequities. We then move into a discussion about the origins of the geographies of Indigenous health and its evolution, including a transformation in the conceptualization and measurement of health. This transformation has led to the uptake of more critical approaches that have sought to understand and describe how historical processes, such as colonization and environmental dispossession, have shaped modern Indigenous relationships to land and what this means for health. Indigenous health geographies have also contributed in significant ways to the development of participatory methodologies and approaches that engage Indigenous peoples and communities in research development as a way of allowing them to exert self-determination over their health, their lands and their environmental futures. This chapter concludes with discussion about future directions in the field.

Indigenous knowledge, connection to land and processes of changing health

Across the globe, there are roughly 400 million Indigenous peoples living on all continents and across many diverse ecosystems (Gracey and King, 2009), including some of the harshest and most inhospitable environments (e.g., desert, Arctic). The term *Indigenous* is generally used in a global sense, whereas Indigenous groups and communities typically have geographically contextualized terms that relate to the places they inhabit, as well as the languages they speak. For example, in central Canada, the Ojibway people are often referred to as the *Anishinabe*, a term that reflects the language spoken by this group, *Anishinabemowin*. Around the globe, there are various other terms used to reflect one's Indigeneity, including native, Aboriginal, tribal peoples, original, first, and many others. Perhaps the most important starting place for research at the interface of Indigenous peoples' health and the land is to think about how and why these concepts are related. Among most Indigenous societies, the answer can come from their Indigenous knowledge (IK) systems. In all Indigenous cultures, daily life and continued well-being has traditionally depended on a deep knowledge of local ecosystems. Although there are no commonly accepted definitions of what an IK system is, it typically refers to the culturally and spiritually based ways Indigenous peoples relate both to their local ecosystems and to one another in the maintenance of health and well-being (Battiste and Henderson, 2000; LaDuke, 1994).

Given the special connection between Indigenous peoples and the land, including the social, spiritual, and economic ties it supports, Indigenous peoples are highly vulnerable to processes of environmental change and environmental dispossession (Ford, 2012; Richmond and Ross, 2009), with strikingly similar consequences for health and well-being. Environmental dispossession refers to the processes by which Indigenous peoples' access to their traditional lands and territories is reduced or eliminated (Richmond and Ross, 2009). These processes occur in direct and indirect ways and are generated both historically – mainly through processes of colonialism – and in contemporary times. Direct forms of environmental dispossession (e.g., physical forms) involve processes that physically disable use of the land, such as industrial activities or contamination events that sever ties to traditional foods or resources required for sustaining daily activities. Indirect forms of dispossession (e.g., political) occur because of policies or regulations that lead to the severance of Indigenous peoples' link to the land and the IK it fosters. Indigenous peoples have been subject to massive relocation projects, for example, as well as various assimilationist policies that have included the forced attendance of Indigenous children at church- and state-run residential/boarding schools in Canada, the United States, and Australia.

In the global context, IK systems are based fundamentally on local experiences, connection to and ongoing observation of the local ecosystem. Because of the vast and often rapid changes brought upon by global industrial development, including various types of contamination and climate change, Indigenous peoples are particularly susceptible to these changes. The results of environmental dispossession for Indigenous health, on a global scale, demonstrate remarkable similarities. The reduced access of Indigenous peoples to their traditional lands and territories has had many detrimental impacts for the preservation, practice and intergenerational transmission of IK, leading to significant changes in way of life and a contemporary health and cultural profile characterized by a greater burden of morbidity and early mortality than the non-Indigenous population.

While the last half century has witnessed incredible gains in life expectancy for Indigenous populations, and a considerable reduction in infant mortality, several other patterns of health are quite troubling, including a high prevalence of cardiovascular disease, type 2 diabetes, cancers, mental illness, addictions and violence, and food insecurity, among many others (Adelson, 2005; Gracey and King, 2009). While most Indigenous populations have undergone the epidemiologic transition, wherein the main causes of Indigenous morbidity and mortality have shifted from infectious to long-term chronic disease, infectious disease is common in the health profile of Indigenous populations. The persistence of infectious disease among Indigenous peoples

includes many ailments that have been all but eradicated in the general population, such as active tuberculosis and rheumatic fever. International research indicates that these health disparities are linked to alienation from land (Richmond and Ross, 2009), limited opportunities to practice activities that foster Indigenous culture, social connectedness, and traditional health and healing, as well as several social determinants of health, including poverty (Adelson, 2005; Frohlich, Ross and Richmond, 2006).

Despite troubling patterns of health evident in Indigenous populations, there are reasons to be hopeful. As noted above, the wide gap in the health and social profile of Indigenous peoples is slowly closing over time. There are many factors leading to the reduction in health disparities, including increased access to culturally safe and high-quality health care; the development of health and social policy that reflects Indigenous ideals and philosophies; the ongoing resolution of Indigenous land claims; increased funding for Indigenous social development and programming; and steady increases in socioeconomic well-being (e.g., increases in high school completion and post-secondary attendance) (Richmond and Cook, 2016).

Perhaps one of the most important contributions to the closing gap on Indigenous health relates to a growing and hopeful movement of Indigenous community participation in health and social research. Building on Smith's seminal work on decolonizing methodologies (1999), a wide body of Indigenous research has been undertaken, led by a common goal of "centering our own concerns and worldviews, and coming to know and understand theory and research from our own perspectives and for our own purposes" (Smith, 1999, p. 39). Such methods require meaningful research partnerships between Indigenous communities and researchers from universities and various governments and organizations, with the ultimate goal of designing and carrying out research that will lead to improved local conditions. These partnerships are a method of decolonization, as the Indigenous communities involved are placed at the center of the research, thereby empowering local influence on research topics, debate and research design and prioritizing local influence in the development of community programs. It is largely within this context that the geographies of Indigenous health was inspired and has since developed.

The evolution of the discipline

While the field of Indigenous health geography has at its core a focus on the intersection between health and environment, the ways in which these concepts have been both defined and measured in the academic context have evolved significantly in the past 30 years. Some of the earliest research focused on measuring disease prevalence and description of health, social and economic indicators of Indigenous well-being (Newbold, 1998; Thouez, Rannou and Foggin, 1989). These early works focused predominantly on understanding and describing health and social trends, and access to health care, among Indigenous peoples. Mirroring work taking place in the epidemiologic literature, these works focused on large-scale health and social survey data in Canada and elsewhere to describe difference with non-Indigenous peoples and to characterize the spatial distribution of Indigenous peoples' health. Perhaps the earliest application of health-geographic research in the Indigenous context was by Thouez, Rannou and Foggin (1989), who examined the epidemiological and sociocultural determinants of health and indicators of malnutrition among the Cree and Inuit of northern Quebec (in Canada). Drawing from both questionnaires and physical examination, Thouez, Rannou and Foggin (1989) concluded that the shift away from traditional lifestyles, combined with non-native health-service provision, was detrimental to health and well-being in northern Quebec. In 1998, Newbold explored the health status of the Canadian Aboriginal population, along with their perceived community-health problems, and proposed solutions to these issues. Drawing from a geographic analysis of the 1991 Aboriginal People's Survey, Newbold found that geographic location (in particular, on-reserve status) played a significant role in determining self-rated health and perceived community-health problems. Similar to trends occurring within the health-geography literature at the time, Newbold concluded that

provision of health services would not be sufficient to improve these troubling health disparities, but that broader social welfare and more comprehensive development programs should be considered.

Beginning in the late 1990s and early 2000s, the research questions and data sources of Indigenous health geographers grew to reflect a wider and more nuanced understanding of Indigenous health. This growth in conceptual definition reflected changes taking place in the wider discipline of health geography – mirroring the recognition of the social determinants of health (i.e., recognizing that health is shaped by many interconnecting determinants (Luginaah, 2009)), and of the necessity of thinking about Indigenous health in a more holistic way (Elliott and Foster, 1995). At the same time, a growing critical emphasis was being placed on the wider social and political forces that frame both Indigenes' health and their environments.

In 2002, Wilson and Rosenberg published a paper that has become one of the seminal pieces in Indigenous health geography. Drawing on data from the 1991 Aboriginal Peoples Survey (APS), they undertook descriptive statistics and logistic regression analyses to explore determinants of health for First Nations people in Canada. While their results indicated that the determinants of health for First Nations are similar to those for the general population, Wilson and Rosenberg's (2002) analysis was among the first to identity the health importance of traditional activities (e.g., harvesting of traditional foods such as berries or animals). While the authors note limitations on the traditional activity measures included in this analysis, this paper called attention to the determinants of Indigenous peoples' health, and especially to other potentially important cultural determinants of health, which they argued were deserving of more thoughtful conceptual development and analysis.

The uptake of these critical perspectives coincided in important ways with a significant methodological reorientation in the ways geographers were undertaking Indigenous health research. Whereas earlier descriptive studies, such as those described above, had relied strongly on quantitative data (e.g., survey, medical and administrative data), research questions about culture and changing relationships with the environment begged for more qualitative and intensive methodologies. It was in 2003, when Wilson published a paper in *Health & Place*, that Indigenous voices themselves began to appear in Indigenous research. Although this important study advanced the theory and uptake of therapeutic landscapes in the Indigenous context, perhaps a more important contribution of this paper was in the way Wilson privileged First Nations voices about their own ideas, their own thoughts on the ways everyday life contributes to health and healing. Wilson (2003, p. 83) concluded that, at the time, "conceptualizations of health and place within the Geography of Health literature were only partial," thereby calling on others in the field to expand their ways of thinking about, and measuring, Indigenous health. Wilson's seminal research set the context for a field that would wholeheartedly embrace this challenge.

In 2005, Richmond et al. investigated First Nations perceptions of the links between environment, economy and health and well-being in 'Namgis First Nation (Alert Bay, British Columbia, Canada), with particular attention on perceived risks and benefits of salmon aquaculture. The results built on Wilson's (2003) holistic conceptualizations of First Nations health (e.g., the mental, social, spiritual and physical dimensions), highlighting the importance of being out on the land and waters for maintaining one's health, as well as the respondents' proclaimed social and moral responsibilities to their communities and as caretakers of the land. These results described the ways that aquaculture development (and other forms of contested development in the traditional territories of First Nations people) had decreased the 'Namgis First Nation's access to local environmental resources and restricted the economic, social, and cultural activities that determine good health and well-being. In their discussion, Richmond et al. (2005) framed these findings around a political-ecological framework (building on Mayer, 1996), that challenged researchers working at the land-health interface, particularly in the Indigenous context, to think more critically about the wider political context within which environmental resource development is occurring and what this means for health. The application of these concepts has since been explored in other Indigenous settings and contexts,

including Māori foodscapes in New Zealand (Panelli and Tipa, 2009), the concept of *caring for country* in Australia (Townsend, Phillips and Aldous, 2009), First Nations perceptions of risk in mining expansion (Place and Hanlon, 2011), and contamination of aquatic foods in the American state of Washington (Donatuto, Satterfield and Gregory, 2011).

The political turn: environmental dispossession and health

The fields of native studies, anthropology and cultural studies are foundational starting places for many who do research in the geographies of Indigenous health. In these disciplines, a good deal of research has focused on concepts related to identity, culture, and the ways in which processes of colonialism have impacted cultural identities and ways of living among Indigenous peoples. In 2000, Peters wrote an article that reviewed the works of Canadian geographers on Indigenous peoples in Canada. Among the many important contributions this article highlighted, Peters identified the process of Indigenous peoples' dispossession of their lands and resources as one of the key topics. Within the health context, geographers had been reluctant to use terms like *dispossession* or *colonialism*; however, there had been important discussion around the need for improved conceptualization of place-based notions of well-being that recognize cultural and environmental specificity (Panelli and Tipa, 2009), as well as greater inclusion of Indigenous worldviews in resource development (Castleden, Garvin and Huuy-ay-aht First Nation, 2009).

In 2009, Richmond and Ross pushed the theoretical boundaries of the land-health relationship when they critically examined the determinants of health through in-depth interviews with First Nations and Inuit community health representatives across Canada. This analysis illustrated holistic connections between health, connection to land and sense of cultural identity. In the wider Canadian literature, up until this point, culture and land had been conceptualized as discrete health determinants. Based on the interviews, Richmond and Ross (2009) articulated the concept of environmental dispossession as a historical and enduring process that has significantly altered Indigenous peoples' ties to the land and their abilities to practice their cultures, conceptualizing it as a process that takes both physical and political forms by which Indigenous peoples' access to their traditional lands and territories is reduced or eliminated. These processes affect the health of Indigenous peoples because they have undermined the ability of Indigenous peoples to practice their land-based cultures and IK systems. This framing has provided many scholars in this field, and beyond, a pathway for exampling and further examining changing patterns of Indigenous health and the varied processes that shape its environmental influences.

The environment as a place of risk

The introduction of the term *environmental dispossession* provided a theoretical framework for understanding, discussing and exploring the historical and contemporary processes that dispossess Indigenous peoples of their lands and livelihoods and shape opportunities for Indigenous peoples' health (de Leeuw, Cameron and Greenwood, 2012; Tobias, Richmond and Luginaah, 2013). On a global level, processes of environmental dispossession – whether operating directly or indirectly – have significant impacts for the health and well-being of Indigenous peoples because they work to destabilize IK systems (Furgal, Martin and Gosselin, 2002). They do so by reducing Indigenous peoples' confidence and ability to know environmental conditions (Furgal, 2008; King and Furgal, 2014).

Around the same time that Richmond and Ross (2009) offered the concepts of environmental dispossession, a base of research was beginning to grow around the possible health risks Indigenous peoples face by living in or near environments undergoing processes of change. That is, while the land had long been seen as a health-enhancing determinant, researchers were beginning to see the health risks associated with

environmental change. Perhaps the most important area of research in the Canadian context is climate change and its health impact in affected Indigenous communities (Ford, 2012). While we know that IK systems are dynamic and constantly changing, processes of environmental dispossession can accelerate these changes in ways that makes normal interaction with the land risky for human health – for example, by eating fish or other country food that has been contaminated by heavy metals. The environmental effects of climate change make it more difficult to predict weather patterns and may lead migratory animals to return later in the season than usual (Cunsolo, Shiwak and Wood, 2017; Durkalec et al., 2015; Ford et al., 2009). These changing conditions can lead to people spending less time on the land because the risk of doing so can become too great (Luginaah, 2009). Less time spent out on the land means that opportunities for sharing knowledge and practicing skills are also limited, leading to the weakening of cultural and social ties that are so important for cultural identity, social roles, moral obligations and self-esteem (Durkalec et al., 2015; Tobias and Richmond, 2014).

Methodological advancements: community in research

Indigenous geography supports a methodological imperative that seeks to place Indigenous communities and their concerns at the forefront of research (Louis, 2007; Louis and Grossman, 2009). The geographies of Indigenous health has passionately accepted this important community-centered paradigm in its uptake of research related to Indigenous health and the environment. Perhaps one of the most important contributions of Indigenous health geographers has been in making space for community ideas, concerns and visions throughout the research process (Tobias and Richmond, 2016).

From about 2010 onward, this small field transformed rapidly to embrace a variety of participatory methodologies that included more iterative and culturally relevant data-collection strategies including sharing circles, story, photovoice, digital stories and documentary film. These empirical studies have not only focused on better understanding particular environment-health relationships, but also scrutinized the methodological practice required to carry out this work. This has led to important critiques about the role of friendship in research (de Leeuw, Cameron and Greenwood, 2012), protocol for relationship building (Tobias, Richmond and Luginaah, 2013), and the roles of non-Indigenous scholars (Graeme, 2013; Graeme and Mandawe, 2017).

In 2008, Castleden and Garvin opened the field to the importance of community-based participatory research (CBPR) in their uptake of photovoice methodology with a First Nations community in Western Canada. Interviews with community participants about the photovoice process revealed that this approach to doing environment and health research had balanced power, created a sense of ownership, fostered trust, built capacity in the community and responded to cultural preferences (Castleden, Garvin and Huuy-ay-aht First Nation, 2008). In their conclusion, however, the authors discussed the importance of being flexible in the research methods and analysis and of making appropriate space and time to engage your research partners in various stages throughout the research process, not only in data collection. As environment and health research in the Indigenous community context continues to grow, this study provides a foundational example for researchers to *listen to and discuss community issues*, thereby opening opportunities for scholars to consider ways their research may impart social change at the community level.

In 2012, Castleden was again at the forefront of foundational discussions about the possibilities of CBPR in the environment-health context explored by health geographers. Based on interviews with Canadian university-based geographers and social scientists who engage in CBPR, Castleden, Mulrennan and Godlewska (2012) revealed that its practice often differs quite substantially from its theoretical tenets. Community time and resources, pressures related to academic timelines, restrictions from Research Ethics Boards, and relationship-building are factors that work together in important ways to shape the ways CBPR approaches unfold in practice by health geographers and others. Since 2012, many researchers and

institutions have identified the ways in which CBPR can differ across Indigenous and non-Indigenous contexts. Such research has helped identify boundaries around the feasibility of CBPR and the need to respect and balance community timelines and desires with academic timelines and funding structures (Tobias, Richmond, and Luginaah, 2013; de Leeuw, Cameron and Greenwood, 2012).

Future direction: Indigenous research by Indigenous researchers

In the past few years, Indigenous voices have become considerably more prominent in the discipline of Indigenous health geography, as has the commitment to see research used for the benefit of Indigenous communities (Castleden, Shiwak and Wood, 2017; Tobias and Richmond, 2016). This differs from work done in this same discipline a mere 20 years earlier, when individuals and communities were depicted as data points in large surveys. As more Indigenous scholars and communities began to engage in this discipline, however, the motivations for research started to lean considerably toward self-determination (Richmond, 2016), the uptake of Indigenous methodologies and approaches, and the development of real-world strategies for preserving IK and protecting environmental futures. Based on research with Anishinabe youth in Ontario, Big-Canoe and Richmond (2014) proposed the term *environmental repossession*, which refers to the social, cultural and political processes by which Indigenous peoples and communities are reclaiming their traditional lands and ways of life. The concept of environmental repossession is rooted in the idea that Indigenous peoples' health, ways of living, and IK systems are highly dependent on access to their traditional lands and territories. But, as we know, great numbers of Indigenous peoples around the world no longer live in their traditional territories – so how can Indigenous peoples practice their cultures and IK systems in the new spaces and places they occupy? This is an important question for health geographers to address. Existing insights point to the importance of unpacking and understanding residential mobility and rural-to-urban migration by Indigenous people locally and globally (Snyder and Wilson, 2015) and listening to youth voices to understand environmental futures (de Leeuw and Greenwood, 2016; Big-Canoe and Richmond, 2014).

As the field of Indigenous health geographies moves forward, environmental repossession provides both a way of thinking and an applied practice that places Indigenous peoples and their knowledge at the heart of the environment and health research context. Environmental repossession, as a theoretical research area, offers a space wherein Indigenous peoples and researchers can come together to share both their experiences of struggle and their best practices for circumventing these negative experiences. Despite the great geographic, cultural and linguistic diversity of Indigenous peoples across the globe, there are many similarities, including experiences of dispossession, land-based knowledge systems and the contemporary burden of health inequity. Working within a decolonizing methodological framework, environmental repossession provides a promising approach for researchers and communities to collaboratively document the unique and varied processes within which Indigenous communities around the globe are engaging in social, political, economic and many other processes as a means of asserting their Indigenous rights and building healthy futures.

The field of health geography has undergone important transitions in the past three decades. With an expansive and broadening set of theoretical perspectives and methodological tools, the discipline has enabled better descriptions and understandings of the complex relationship between human health and its multiple, inter-related determinants. The discipline's preoccupation with place and space has lent strength to studies focused on Indigenous peoples and the determinants of Indigenous health. Despite the great diversity of the global Indigenous population, there are two important shared characteristics; the first relates to the importance of IK systems for the health of Indigenous communities, and the second relates to their common experiences of colonization and environmental dispossession. Borrowing from both health geography and Indigenous geography, the new field of the geographies of Indigenous health provides a promising discipline

from which to explore the ways in which the health and well-being of Indigenous peoples and communities are shaped by the environments within which they live, to critically explore the *processes* that affect the health and environments of Indigenous peoples, and to open more meaningful spaces for Indigenous scholars and communities to engage in research that will support Indigenous well-being and environmental protection.

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