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From cutlines to traplines: Post-industrial land use at the Pine Point mine



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ABSTRACT

Industrial mineral extraction in Northern Canada has had lasting, transformative effects on landscapes and land-based economies. This paper examines post-industrial hunting and trapping at the former Pine Point mine, Northwest Territories, to clarify the effects of environmental and socioeconomic change on land use in the nearby, predominantly Aboriginal, community of Fort Resolution. Pine Point was an extensive open pit mine where failed attempts at remediation have resulted in a landscape that remains drastically altered 25 years after closure. Although the mine employed few individuals from Fort Resolution, the introduction of industrial mineral extraction in the region coincided with a transition from a primarily land-based economy to a mixed economy heavily reliant on wage labor. Map-based interviews with local land users documented ongoing, contemporary interactions between land users and the abandoned Pine Point mine which demonstrate that some of the physical and socioeconomic transformations associated with industrial development continue to shape land use in the Pine Point region. From maintaining a reliance on the mixed economy to appropriating the post-mining landscape in ways that benefit hunting and trapping, land users from Fort Resolution continue to be influenced by the Pine Point mine long after its abandonment.

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1. Introduction

Industrial resource extraction introduces profound changes to local economies and landscapes, which often persist long after extractive operations cease. Globally, the impact of “legacy mine lands” on local environments and communities is identified as a critical sustainability challenge for the mining industry (Veiga et al., 2001; MMSD, 2002a; Worrall et al., 2009; Sandlos and Keeling, 2013). In places that have hosted large-scale industrial developments, ecological and landscape changes may be observable for decades or longer (Francaviglia, 1991; Hilson, 2002; Bridge, 2004). This is especially true in northern regions, where natural revegetation is slow even under optimal circumstances (Marshall, 1982; Harper and Kershaw, 1996; Johnstone and Kokelj, 2008; Deshaies et al., 2009). The lasting environmental effects of mineral extraction are compounded by the socioeconomic changes that can occur at various points in a mine’s life cycle, including mine closure itself (Kendall, 1992; Gagnon, 1992; MMSD, 2002b;

Laurence, 2006; Bridge, 2004; Keenan et al., 2007). For indigenous communities around the world, whose livelihoods and cultural practices are often tied closely to the local environment, these long-lasting environmental effects may be particularly devastating (Howitt, 2001; Ali, 2003; Ballard and Banks, 2003; Kirsch, 2006; Halvaksz, 2008; Keeling and Sandlos, 2009). In this study, we examine post-industrial land use at the abandoned Pine Point mine in Canada’s Northwest Territories to broaden understanding of how the environmental and socioeconomic legacies of mining are manifested in nearby indigenous communities, long after closure.

We examine this complex interplay between extractive development, indigenous land use, and deindustrialization through the lens of a “micropolitical ecology” (Horowitz, 2010, 2011) of land use change. The literature on the political ecology of extractive development focuses on resource conflicts and environmental impacts on indigenous peoples’ traditional territories (Bebbington et al., 2008; Keeling and Sandlos, 2009; Bebbington, 2012). Indigenous encounters with development may be characterized by a complex combination of accommodation, resistance, adaptation, and engagement (Ali, 2003). The investigation of the “micropolitics” of land use and environmental change can reveal the local particularities and diversity of these encounters, while recognizing their connection with wider social and economic processes that are typically the focus for political ecologists

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(Kirsch, 2006; Horowitz, 2012; Cater, 2013). Employing a grounded, ethnographically informed method for mapping land use change, this study models an approach for capturing the complex, ongoing legacy effects of mineral development on indigenous lands and communities.

In the twentieth century, industrial development expanded throughout Canada's subarctic as developers were drawn north by the promise of resource wealth. The federal government supported industrial resource extraction through subsidies that served to advance neocolonial agendas in the North (Asch, 1977; Notzke, 1994; Manseau et al., 2005; Piper, 2009; Sandlos and Keeling, 2012). Federal officials sought to replace what they saw as a dying Aboriginal¹ fur trade with an economy based on natural resource extraction, particularly mineral development (Wolfe, 1992; Thompson, 2005; Sandlos and Keeling, 2012). While these policies helped pave the way for rapid industrial expansion in the North after the Second World War, the hunting and trapping economy that preceded extractive development never truly ended (Fumoleau, 1974; Usher et al., 2003; Myers et al., 2005; Sandlos and Keeling, 2012). Abel (2005) characterizes the industrial economy and the land-based economy as independent from each other, while Wenzel (1983) and Gagnon (1992) suggest that they are essentially separate but in a dynamic state of coexistence. By contrast, Berkes et al. (1995), Usher et al. (2003) and Natcher (2009) assert that these economies are truly mixed, intertwined within Northern Aboriginal communities and households.

The establishment of the Pine Point mine similarly gave rise to a mixed economy that Natcher (2009) calls an "overall livelihood strategy" (p. 91). We argue that this 'strategy' has been perpetuated well after the end of mineral development as land users continue to adapt their economies and environments to create and maintain viable post-industrial livelihoods amidst a degraded, post-industrial landscape. As a poorly reclaimed, open pit mine complex located in an area with a long history of Aboriginal land use, the abandoned Pine Point mine in the Northwest Territories illustrates how the ongoing "micropolitics" of extractive development and local land use persist long after the putative end of development.

The mine, located on the southern shore of Great Slave Lake (Fig. 1), was an extensive open pit operation opened in 1964 by a subsidiary of Cominco Ltd. At its peak, Pine Point shipped 1000 tons of high grade lead and zinc ore to Cominco's smelter in Trail, British Columbia, each day. During the mine's initial development phases, the Canadian Government contributed nearly CAN\$100 million for infrastructure, including a railway, hydroelectric dam, highway improvements, and a town site that was home to approximately 2000 residents at its peak (Deprez, 1973; Macpherson, 1978). While oral histories, reports, and traditional knowledge studies from the Pine Point region indicate that local land use was affected throughout the mine's lifespan and after its abandonment (Nahanni, 1977; Macpherson, 1978; Sandlos and Keeling, 2012), no previous studies have closely examined the various environmental and socioeconomic factors that helped give rise to contemporary land use near the abandoned mine.

The Pine Point mine transformed local livelihoods as well as the physical landscape. The mine site is flanked by the predominantly Dene and Métis community of Fort Resolution 70 km to the east and the Hay River (Katl'odeeche) Dene Reserve 90 km to the west. Both of these communities have historically relied on the land for

economic purposes, including hunting and trapping for both subsistence and the fur trade (Smith, 1976). This study focuses on Fort Resolution, a community of fewer than 500 people as of the 2011 census (Statistics Canada, 2012). Known in Chipewyan as Deninoo (Moose Island), Fort Resolution is the oldest community in the Northwest Territories. It formed around a prominent fur trade post and shipping hub in the early 1800s and hosted a Roman Catholic mission by the 1850s (Fumoleau, 1974; Macpherson, 1978; Helm, 2000; Abel, 2005). Smith (1976) chronicles part of the colonial history of Fort Resolution, and Helm (2000) describes the predominance and character of the land-based economy in Dene communities prior to the emergence of the contemporary mixed economy.

These traditional land uses were fundamentally altered by the landscape changes and the introduction of wage labor associated with the development and operation of the Pine Point mine (Macpherson, 1978; Sandlos and Keeling, 2012). The mine development predated contemporary standards of community engagement; there were neither community consultations nor impact benefit agreements to address the local environmental, social, and economic impacts associated with industrial mineral extraction (Macpherson, 1978; Notzke, 1994; Hipwell et al., 2002; Angell and Parkins, 2011). An extensive network of cutlines was bulldozed through the boreal forest during seismic exploration, displacing some local land users who hunted and trapped in the area. Highway construction and the process of dewatering open pits disrupted the local hydrology, causing localized flooding that also forced local land users to abandon trapping in the area (Sandlos and Keeling, 2012). During its 25-year operation, the Pine Point mine embodied an appropriation of land and resources for industrial use and, post-closure, it remains a highly visible "symbol of the political and economic power of outsiders to shape local environments" (Sandlos and Keeling, 2012, p. 11).

In the post-industrial era, these far-reaching environmental and socioeconomic impacts continue to influence Deninu Kue First Nation and Métis land users in Fort Resolution. When the mine was abandoned in 1988,² the Pine Point town site was cleared of buildings, 46 pits remained open, waste rock was left piled around the mine site (Fig. 2(a and b)), and attempts at tailings revegetation were abandoned after an unsuccessful pilot study (Gardiner, 1990; Sandlos and Keeling, 2012). Cominco's Restoration and Abandonment Plan dealt primarily with tailings containment and discharge (Cominco Ltd, 1991) but accomplished little by way of restoring the extensively degraded landscape to its former condition. Indeed, reclamation was considered a technical problem of hazard mitigation, and the detrimental impacts of the abandoned landscape on Aboriginal land use were not considered. While Sandlos and Keeling (2012) demonstrate that community members in Fort Resolution still associate the abandoned mine with dispossession and environmental degradation, Environment Canada featured Pine Point as a successfully decommissioned mine in a 1996 report (Environment Canada, 1996). This apparent contradiction shows that the process of abandonment must be more than a technical fix; if abandonment is to be truly successful, the process must also account for the mine's afterlife and how it shapes the long-term concerns and practices of local communities.

2. Research objectives and methods

The purpose of this study is to examine the relationship between Pine Point's post-mining landscape and the contemporary land use of Aboriginal land users from Fort Resolution. It is

¹ The linguistically related peoples indigenous to western subarctic North America are collectively referred to as 'Dene.' Participants in this study were either Chipewyan Dene or Métis, a term that refers to people of mixed Euro-Canadian and First Nations heritage. In this paper, we refer to Dene and Métis peoples collectively as 'Aboriginal,' following the official terminology currently used in Canada (Helm, 2000; Desbiens and Rivard, 2014).

² While the announcement of closure occurred in 1987 and procedures for closure and abandonment continued into the early 1990s, milling operations at Pine Point ceased in 1988 (Cominco Ltd., 1991).

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