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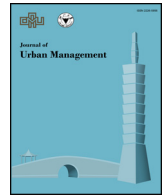
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# Ecological wisdom: Reclaiming the cultural landscape of the Okanagan Valley

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## ABSTRACT

The bucolic Okanagan Valley, located on traditional territory of the Syilx/Okanagan Peoples in British Columbia (Canada), is a region in transition, the outcome of climatic and hydrological changes related to global warming and over a century of development-driven land use management practices. Land use decisions and public policy continue to be driven by an unfettered hunger for land, not necessarily in the long-term interest of delivering sustainable or socially equitable development models, while ongoing planting of new vineyards represents one of the most severe threats to biodiversity within the Valley. Respect for Indigenous expert knowledge—Traditional Ecological Knowledge and Wisdom (TEKW) – and maintaining their values in the land, is a land use topic often excluded from settler expansionism development practices and policies. This prospectus paper calls for a shared vision, developed in partnership with local expertise, to ensure a productive and experientially rich cultural landscape that protects the long-term viability of the region. Establishing a comprehensive policy framework for the natural and built environment grounded in the concept of investing in ‘place’ is proposed as a potential step forward in developing sustainable and adaptive communities to secure the well-being of the Valley. TEKW provides a base from which to connect ideas about cultural landscape, beauty, experience, and environmental policy, to support the conservation and sustainable management of natural capital for the benefit of future generations.

## 1. Ecological wisdom: A local prospect

Ecological wisdom is embraced as “both individual and collective knowledge” (Xiang, 2014, p. 67); this knowledge expands through sharing experiences and diverse understandings of relationships to the local environment. Wisdom is gained through reflecting on this knowledge, between generations (Xiang, 2014) and between cultures. As Marc Treib states in “The Measure of Wisdom: John Brinckerhoff Jackson” (1996): “To be knowledgeable is more easily accomplished; the gathering of facts is like the raising and harvesting of crops. But this is fodder, it is the raw material that must be integrated with thought, ideas, and experience. It needs to be tested and tempered, distilled and clarified. Thus comes wisdom.” (Treib, 2005, p. 193).

The ability to learn from the accumulation of knowledge over time, through expert observation, is fundamental to Traditional Ecological Knowledge and Wisdom (TEKW) (Berkes, 1995; Pierotti, 2010; Schorcht, 2002; Turner, Ignace, & Ignace, 2000); observation is where science and poetry meet (Angel et al., 2016). Traditional knowledge invokes a spiritual or sacred tenant of ecological systems – one of inherent beauty. It is simultaneously an alternative and complementary lens to the broader and more global perspective of western science (Berkes, 1995; Pierotti, 2010).

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Knowledge and lived experience are passed forward and made sense of through a dynamic process of oral narrative (Berkes, 1995; Pierotti, 2010; Schorcht, 2000) – narratives providing a foundation of the concepts and principles that structure ecological knowledge (Pierotti, 2010). People share a responsibility to care for the land, the water, and for all who reside within a place. Culturally embedded in TEKW is an imperative to preserve land and natural capital resources for the benefit of those who will come after.

The Okanagan Valley, British Columbia (BC), Canada is currently in a ‘revenue windfall’ from the emerging success of its wine industry—a boom period. However, poor land management and unsustainable development policies may lead to a period of economic deficit (the bust) and a parallel *depression* of the land. Depletions within the Okanagan’s natural environment have been carefully observed by the indigenous Syilx peoples, the knowledge and lived experience of changes within ecological systems transferred over generations; the destruction of environment and landform within the Valley akin to ripping out pages from a history book (Maracle, Armstrong, Derickson, & Younging, 1994).

## 2. Consumed landscape

As Canadians, the idea of landscape intuitively makes sense. We are a nation awestruck with the visual image of it, the experience of it. Yet, we also see its value as a resource to be consumed. In the same breath of our reverence, we talk about ripping into the natural resources within spell-binding panoramas. We risk leaving behind altered and consumed landscapes: landscapes that no longer yield or sustain diverse life.

The Okanagan Valley (Fig. 1) is drifting towards becoming one such consumed landscape. Located in one of the most idyllic and bucolic settings in BC, the landscape is in transition, the outcome of climatic and hydrological changes related to global warming and a century of development-driven land use management practices (Brewer & Taylor, 2001; Wagner & White, 2009). It is a highly cultivated agricultural valley, tucked within the wilderness of the Rocky Mountains’ cordillera, stretching 200 km from the city of Vernon in the southern interior of BC to the town of Brewster, Washington, in the United States. Its dense matrix of orchards and vineyards appeals to our fantasies of an idyllic agrarian landscape, the beauty enhanced by a green efflorescence which rests on an arid and mountainous landscape. The southern valley sits within the northernmost point of the Sonoran desert; distinctive sagebrush grasslands, very rare in Canada, are found here. A geomorphology of undulating glacial moraines at upper elevations contrast with alluvial fans reaching out into the valley below.

The Okanagan is a national hotspot of biodiversity, holding one of the highest ratings both nationally and globally of species richness as well as species rarity (Bezener et al., 2004; Hobson, 2016; Okanagan Collaborative Conservation Program and South Okanagan Similkameen Conservation Program, 2014; South Okanagan Similkameen Conservation Program, 2000). The region is a critical corridor for wildlife movement, connecting the dry landscape habitat of the central interior with that of the south. A range of interconnected ecosystems – from grasslands, riparian and wetland areas, forests, rugged terrain, to rocky cliffs – serve as critical habitat for a diverse collection of rare and endangered species.

Wineries and tree fruit production form the mosaic of the present day cultural landscape<sup>1</sup> (Fig. 2); they are essential to the very idea of the Okanagan, a way of seeing, and a way of life, having evolved from the agricultural practices of European settlers in the nineteenth century. The result is an agricultural landscape of visibly striated biomes—wetlands and orchard production on the valley floor, a middle band of monoculture grapevines, and arid antelope grasslands above.

In 1859, the Oblate Missionaries introduced grapes to the Okanagan Valley for sacramental purpose which stimulated an interest in viticulture, briefly interrupted by Prohibition in 1917 (Wilson, 2009). Five years following the end of Prohibition (1921) the first commercial planting of grapes revitalized the wine industry (Wilson, 2009). Fifty years on, in the 1980s, the introduction of hybrid grape varieties increased the profile of Okanagan wine and set the stage for boutique wineries (Belliveau, Smit, & Bradshaw, 2006).

The footprint of wine grapes has quadrupled over the last twenty years (Crawford et al., 2012; Wagner, 2008; Belliveau et al. 2006); new larger vineyards, increasingly under the ownership of corporations or foreign investors, help draw unprecedented numbers of tourists to the area. The soil type on the valley floor has somewhat contained the expansion of vineyards, yet they continue to creep upland disrupting vital grassland ecosystems and species-rich, sacred habitats.

The exploitation of this particular crop species (wine grapes) is ultimately displacing other biological productivity, including food crops. What makes the region unique – the diverse natural landscape – is significantly at risk (Okanagan Collaborative Conservation Program and South Okanagan Similkameen Conservation Program, 2014; Wagner, 2008) from habitat fragmentation, erosion of protected land reserves, and biodiversity loss (Okanagan Collaborative Conservation Program & South Okanagan Similkameen Conservation Program, 2014; South Okanagan Similkameen Conservation Program, 2000; Wagner, 2008) (Fig. 3). Specialization and loss of diverse biological resources have reduced the built-in resiliency of a once varied landscape;<sup>2</sup> the planting of new vineyards represents one the most severe threats to biodiversity within the Valley (Wagner & White, 2009). The aggressive growth of the wine industry and expansion of urban areas<sup>3</sup> within a limited land surface have occurred without acknowledging the complexities of the evolving natural and social systems of the region; land use decisions continue to be driven by an unfettered hunger for more space, not necessarily in the long term interest of delivering sustainable or socially equitable development models (Wagner, 2008). It is

<sup>1</sup> The *European Landscape Convention* states that cultural landscapes are natural, rural, urban, and peri-urban. They include land and inland water. They are productive, everyday and degraded. Landscape itself is understood as a cultural construct; a way of both seeing and being. See Fairclough, 2002.

<sup>2</sup> Biodiversity management is both ecologically and economically beneficial: enhancing biodiversity builds resilience, and the degradation and loss of biodiversity have economic consequences. Studies into ecosystem functioning and biodiversity suggest that depletion of biodiversity equates to a loss in production, ultimately at the expense of human well-being. See Naeem, Bunker, Hector, Loreau, and Perrings, 2009; Perrings, Miller, Role & Holling, 1995; Swanson, 1995.

<sup>3</sup> Population is expected to increase by 241% between 1986 and 2051. See Wilson, 2009.

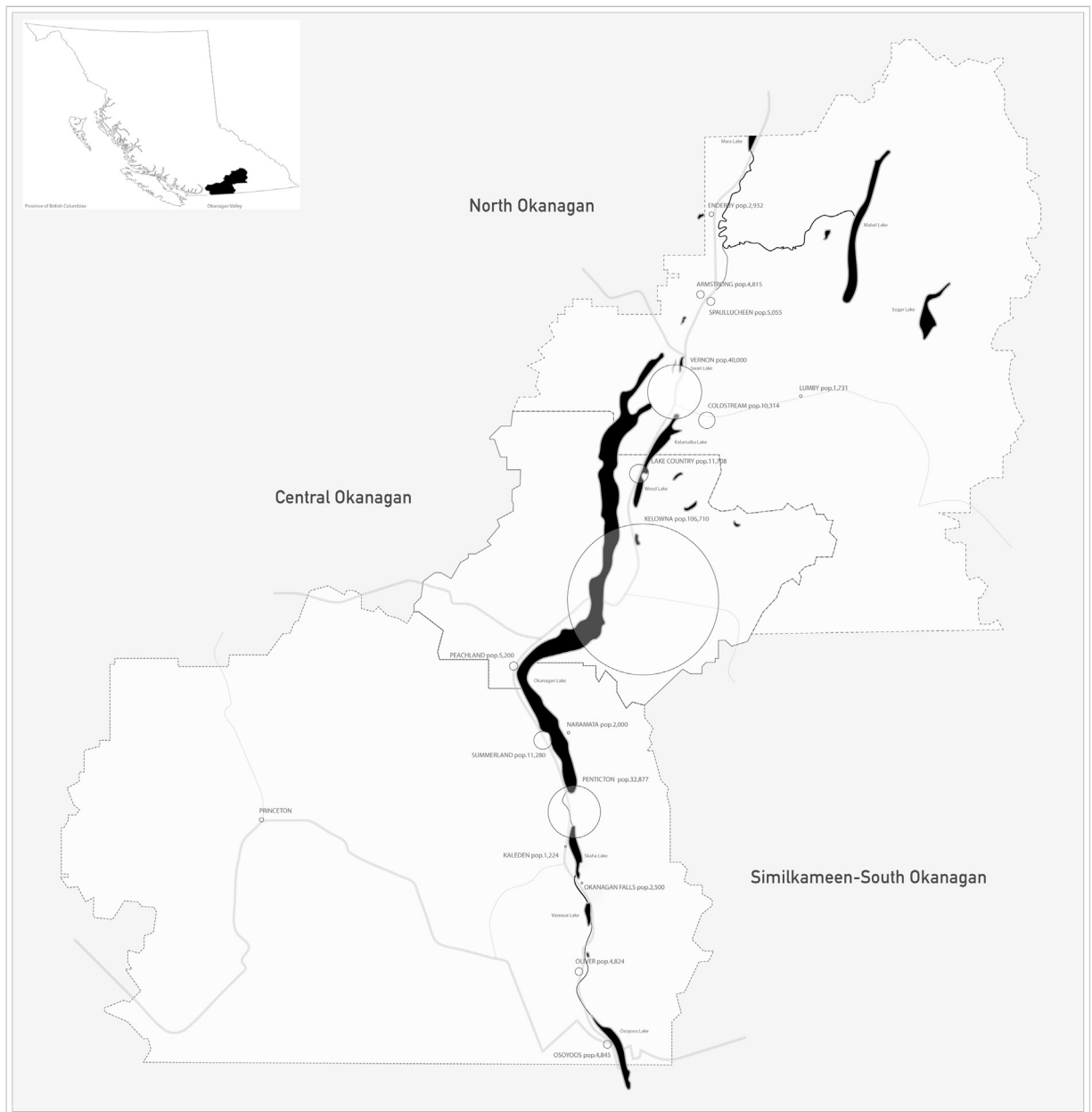


Fig. 1. Okanagan Valley. Image by author.

perceivable that continual loss of sensitive biodiversity found within the Okanagan could result in the long-term economic devaluing of the signature product produced in the region i.e. wine (Altieri, 1989). It is a landscape at the precipice of being stripped of both meaning and biological functioning; a lesser landscape (Wagner, 2008).

Unlike many other wine regions, the Valley may benefit long-term from global warming and surging temperatures with higher grape productivity and better suitability for specific varietals (Caprio & Quamme, 2002; Hannah et al., 2013; Holland & Smit, 2010). Though the grapes may thrive, people and wildlife may not. Increased rainfall, severe temperature fluctuations, reduced snowpack, changes to stream flows, droughts, wildfires, crop diseases, and greater variability in crop productivity (Hadarits, Smit, & Diaz, 2010), will place pressure on nature's contributions to people,<sup>4</sup> ever more so if rates of biodiversity and habitat erosion continue course.

<sup>4</sup> This paper identifies the inclusive valuation of nature's contributions to people (NCP), over the term 'Ecosystem Services'. NCP, developed within the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), recognizes the integration of multi-disciplinary knowledge and multiple voices (Pascual et al., 2017).



Fig. 2. Landscape matrix of vineyards. Photo courtesy of Janis Nicolay. ©.



Fig. 3. City of Penticton. Photo courtesy of Janis Nicolay. ©.

Rapid urban development and land use changes and have further stressed a tenuous water supply (Cohen et al., 2006; Hobson, 2006; Angel et al., 2016; Okanagan Collaborative Conservation Program and South Okanagan Similkameen Conservation Program, 2014; Brewer & Taylor, 2001; South Okanagan Similkameen Conservation Program, 2000.; Wagner & White, 2009). The Okanagan is the most water scarce region in Canada with less water available per person than anywhere else in the country, yet communities use more than twice the national average (Angel et al., 2016). Part of the problem rests with perception – a massive lake anchoring the valley makes it difficult for people to think about water as a threatened resource – yet both water supply and water quality in the Okanagan Valley have reached critical tipping points. Demand is outpacing supply with ongoing changes to the valley’s hydrological system stemming from development, agriculture, a growing population, and global warming.

Images first used to attract European settlers to the Okanagan in the early twentieth century promoted the idea of an idyllic land, a green oasis of orchards (Wagner, 2008). Since this first marketing of the region as a lifestyle of health and *beauty* (Wagner, 2008; Wilson, 2009), a singular vision has presented the ideal of a place, one that is perhaps more myth than reality. This filtered lens impacts the manner in which development and land use are managed and stewarded (Wagner, 2008), and the way in which public policy is both created and applied: as something less holistic and integrated than it could be. The potential for sharing and imbrication of knowledge has been reduced by a lack of community engagement<sup>5</sup> in decisions that will have long-term consequences on the livelihoods of the people who reside in the Valley. To the region’s detriment, recognition of the traditional ecological knowledge and wisdom of the Okanagan Indigenous community, the Syilx people, continues to be subjugated (Maracle et al., 1994; Angel et al., 2016).

Though the region is facing elevated environmental and economic vulnerability from climate and hydrological shifts, there is limited coordinated (Wagner & White, 2009) adaptation or mitigation, impaired by a disconnection between intergovernmental precepts and operational realities. Problems have been so well managed to the extent that many people are oft unaware (Crawford

<sup>5</sup> A lack of knowledge often hampers efforts to increase agricultural production, conserve biodiversity, and protect habitat. See Jackson, Rosenstock, Thomas, Wright, & Symstad, 2009.

et al., 2012) that there are crises within the ecological system. A predictability and stasis are communicated publicly, a message at odds with the reality of the increasing delicacy and vulnerability of local ecosystems, tenuous agriculture, depleted water supply, unpredictable climate, and unsustainable urban development models. Much is left out in what has perhaps become an idealized landscape – a landscape which is undergoing profound transition.

The Okanagan has inadvertently shielded itself against taking action in response to the degradation of the environment and global warming by high-level thinking not always making its way down to local policy and practice (Water Researcher & Community Advocate, personal communication, October, 2016), such as community-based conservation efforts. Informed by science, and a top-down approach (Wagner & White, 2009), strategies for addressing conservation of water and restoration of habitat miss opportunities for engaging expertise from local knowledges. Though the enormity of the challenges are widely acknowledged, policy and action for holistic and adaptive planning and management at the local level are needed (Crawford et al., 2012). It is here where TEKW has the informed capacity to guide and manage interventions in response to ecological transformation (Pierotti, 2010; Turner et al., 2000).

### 3. Colonized landscape

The Okanagan has been subject to the boom and bust of shifting agricultural commodities; cycles of high productivity, followed by a decline, have stripped and then reformed the landscape. Late 1800s European settlement in the Valley bottom and the upper elevations were first carved out by ranching, followed by agriculture, logging, and mining operations (Crawford et al., 2012; Hessing, 2010/2011; Wagner, 2008). Tobacco, other cash crops, and fruit tree orchards were thriving in the early 1900s.<sup>6</sup> By 1920, the Valley was highly cultivated with the introduction of irrigation (Wilson, 2009; Hobson, 2006) and exports targeted for other areas in Canada and abroad.<sup>7</sup>

Canada offers pristine beauty, from North to South, but this beauty is laden with a history of erasure, loss, and displacement of the people who occupied its territories since time immemorial. The Okanagan shares this history of dispossession yet the acknowledgement and recognition of this past, and the effects on the present, remain buried. The Valley has suffered a history of colonization and disempowerment of its first inhabitants, Syilx / Okanagan People, through intensive agricultural and ranching practices, and ongoing expansionist land management methods (Angel et al., 2016; Wagner, 2008). This history settles as stillness, it is part of the very air we breathe as Canadians; and it is a scar on the cultural landscape.

The narrative of the Okanagan has been one of the European settlers dominating over and altering the land (Maracle et al., 1994), to conform a new way of functioning to support the growth of introduced non-native food and fruit tree crops and, later, grapes for wine. Catastrophic environmental disturbances of the valley were hastened in the early 1900s when the BC government subdivided much of the land for returning war veterans to cultivate. The post-war conversion of land for settlement and cultivation purposes compounded the rapid degradation of biodiversity, disrupting ecological functioning and resilience (Barbier et al., 2009; Swanson, 1995) of the diverse ecosystems that structure the region's landscape. Several large-scale agricultural infrastructure projects were invested in for settlement establishment and agricultural advancement. Waterways were reformed, dyked, and realigned (Wagner, 2008) while nearly the entire length of the Okanagan River which flows through the valley – linking a series of lakes before joining the Columbia River – was dammed and straightened for irrigation purposes.<sup>8</sup> This coarse earthwork destroyed the finer grain of ecological systems, filling in wetlands, peeling away riparian areas along the river's banks, and carving out fish and wildlife habitat. The knock on effect was that the salmon, the food pillar for the Syilx people, were unable to make their way through the dam to lay their eggs and the population plummeted.<sup>9</sup> The Okanagan River is now one of Canada's most endangered waterways (Angel et al., 2016; Wagner & White, 2009).

The integrity of the land has since been compromised, with consequences for native and wetland species, as well as landscape heterogeneity. Between 1938 and 2005, up to ninety percent of natural areas in the valley bottom of the Okanagan have been impacted, converted, or destroyed (Angel et al., 2016), while eighty-four percent of the region's wetlands have been removed, pushing wetland species to critical levels of risk (South Okanagan Similkameen Conservation Program, 2000). Lands once moist and fertile have dried, causing hardship for not only agriculture and ranching but also for the Syilx/Okanagan People who have relied on the land for food and livelihood since time immemorial.

### 4. The identity of place

The Indigenous world view, in contrast to a western world view, holds connection to land and the natural world (Berkes 1999; Maracle et al., 1994; Angel et al., 2016; Pierotti, 2011); meanings and knowledge are formed through an understanding of natural laws, learned and observed over generations. A 'way of life', supported and reinforced by key signifiers of a cultural landscape – sacred vegetation, the topography of the valley, vistas across Lake Okanagan, the song of the endangered Yellow-breasted Chat bird,

<sup>6</sup> Apple trees were first planted by the Oblate Missionaries in 1862. See Wagner, 2008; Wilson, 2009.

<sup>7</sup> International exports were primarily targeted for Great Britain. North American markets were further expanded with the Canadian National Railway. See Wilson, 2009.

<sup>8</sup> Water has been a contested resource since the early 1900s (Wilson, 2009); the surveying of land secured water rights and put restrictions in place favoring development, while excluding Indigenous communities from holding legal entitlement to access. See Wagner & White, 2009.

<sup>9</sup> Not only a critical cultural food, salmon are an important keystone species for river systems, with other mammals, birds and fish feeding on them at their various life stages. See Hobson, 2006; Angel, 2016; Okanagan Collaborative Conservation Program & South Okanagan Similkameen Conservation Program, 2014; Wagner & White, 2009.

and fragrance of the sagebrush – reinforce connections to the landscape and place. As people become more vulnerable to the unpredictability brought on by shifts in tourism, consumer taste, economy, industry, and climate, a relationship with the land becomes disconnected from the economic, ecological, cultural, social, and experiential values landscape offers. This redefined relationship people have with the landscape in the Okanagan reflects at its very core an erosion of identity, wherein the region is no longer a reflection of the people who live there.

## 5. A setting for living

Might a future envision sustainable and adaptive communities that recapture meaning and significance, embracing a regional identity tethered to local ecological expertise (wisdom)? Could we design for a quality of beauty within this contested and unpredictable environment, through re-imagining poetic and experiential dimensions of the cultural landscape of the Okanagan? How might the region manage biodiversity (its natural capital) as a vital component of the cultural landscape – productively, economically, and experientially? Given the challenges the Okanagan region faces, community action will be vital in creating conditions to foster innovation in the development of sustainable urban and agricultural development models, supported by progressive policies for the natural and built environment.

### 5.1. Reclaiming the cultural landscape: Ecological wisdom

The ‘original’ landscape, precious and rare, risks losing not only its economic value but also its value of beauty. In his essay *The Necessity of Ruins*, Jackson (1980) suggests that a “landscape has to be plundered and stripped before we can restore the natural ecosystem... before there can be renewal and reform” (p. 102). Must the Okanagan fall first to such a state of ruin, so that “what has been neglected” (Jackson, 1980, p. 102) can be redeemed? As so little of the natural (pre-1900s) ecologies still exist, a re-imagination of the cultural landscape is opportune.

How might an understanding of the environment as a holistic system, a spiritual rootedness to place, and affirmation of people’s place and responsibilities within it, begin to inform a world view and land use practices in the Okanagan Valley? The Valley is an inextricably linked system; re-imagining the region as a whole might address ecological and hydrological processes as a totality–in balance with sustainable development, agriculture, and leisure. There are opportunities for the expertise offered in science and TEKW of the Syilx peoples to mutually inform one another, to re-imagine a new holistic relationship with the land while providing site-specific approaches to address micro-scale changes in resources. With shifts in climate and hydrological conditions anticipated across the valley, finer grained adaptations within the natural and built environment will become increasingly critical.

TEKW is sensitive to complex temporal and spatial cycles and year-to-year variation from natural and anthropogenic changes and interventions. Peoples’ lives and activities are synchronized to the rhythms of the land and water; how resources such as plants and food sources, are used, monitored, managed, and regenerated is informed by an awareness of ecological indicators communicated over generations. Through the careful observation and surveying of natural phenomena (Berkes, 1995; Pierotti, 2010), and the exchange of information, precise knowledge and details about specific resources within local environments and places are transmitted (Turner et al., 2000). Immediate action can be taken to adapt to any unexpected change – a built-in resiliency – through innovative shifts in the use of technology or management practices.<sup>10</sup>

### 5.2. Empowerment of community

The challenge lies in mobilizing shared objectives to build long term resilience in the Okanagan within a climate of divisive and polarized interests. Indigenous communities, long-time landowners, entrepreneurs in new industries, youth, and non-profit organizations need the agency to assume leadership in effecting positive change, and to be empowered in the discussions that will have long term consequences on their well-being (Wagner & White, 2009).

A (perceived) lack of action in municipal government and increasingly powerful private land developers appear to hinder the strong leadership held within a multiple and complex layering of non-profit organizations (Regional District Planner, City Planners Penticton and Kelowna & Community Advocates, personal communication, May 2015–October 2016). However, strengthening citizen outreach has the potential to contribute to restructuring policy and practice to achieve greater equity (Altieri, 1989). Establishing partnerships and networks between government, development interests, experts, Indigenous communities, and landowners could help foster collective action, capture benefits from mutual social learning, and build trust, to shape new policies for the design and management of the natural and built environment.

Ongoing public education and participation will help promote public awareness about the need to protect and enhance biodiversity; better communication can contribute to equipping residents with the knowledge and tools to act. Further, public oversight can be a major force to ensure municipal and regional governments follow policies to meet the objectives established by a collective vision for the future. The more that the public understands and supports long-term goals for the region, the more that communities will hold governments to account to protect the integrity of the natural capital cradled within the Valley.

<sup>10</sup> Ecological wisdom develops guidance through knowledge gained from restoration and management actions, knowledge that “originates and evolves from diverse philosophical, cultural, and disciplinary backgrounds and across generations.” Xiang, 2014, p. 67.

The author has initiated conversations<sup>11</sup> with the community about the future of the Okanagan. Workshops explore the poetic dimension of nature's contributions to people to discuss where there are opportunities for science, Traditional Ecological Knowledge and Wisdom, and design to mutually inform each other to re-imagine a holistic relationship with the cultural landscape, bound within stories that can reconnect people with the land.<sup>12</sup> There is a yearning to develop dialogue through creating shared stories, to heal the land, and to act as a counterpoint to the blunt force narratives and messages being driven by institutions and government. Historical wrongdoings, supported by an unjust ethical framework, have disconnected communities and cultures of the Columbia River Basin which flows across jurisdictions and boundaries.<sup>13</sup>

### 5.3. Convergence: Establishing a comprehensive policy framework for the natural and built environment

An innovative model developed by people in the Okanagan for the Okanagan could create incentives for building optimal biodiversity in conjunction with the active discouragement of actions that work against these, through policy frameworks and economic incentives.<sup>14</sup> Enacting policy informed by TEKW could contribute towards the sustainable management of land resources incentivizing biodiversity enhancement and conservation, to construct a long-term vision for a resilient (socio-economic, ecological) climate-adapted future. Developing coordinated district and regional policies should be an urgent priority; policies that are relevant for a scale of community-level decision-making to adapt to changing ecologies, economies and social contexts, and responsive to the emerging agricultural industries and development aspirations.

## 6. A Re-imagined landscape aesthetic

The Okanagan Valley is a cautionary case study for the expansion of, and economic dependence on, a specialized agricultural product (the wine grape), tenuously underpinned by sprawling urban development models at the expense of degrading a vulnerable biodiversity stock. Despite a projected increase in suitability for growing grapes brought by a changing climate, a continued expansion of the ecological footprint of the wine industry has the potential to create an altered and consumed landscape, devoid of the very aesthetic, ecosystems, and experiences that make it extraordinary.

A complete eradication of production, in the interests of restorative ecology, is not a viable way forward; nor is a 'business as usual approach' geared towards short term development ambitions. The Okanagan is a region which presents an opportunity for new approaches to the development of communities to mend both cultural and social-ecological relationships and to transform towards resilient community design, encompassing a holistic relationship between place, people, ecosystems, economy, and productivity. There is a place-based landscape argument to be made for re-imagining ecosystem diversity and complexity within the region in order to increase production of its agricultural product (wine) (Naem, 2009) and reinforce a connection between place and product. Establishing a policy for the built environment grounded in the concept of investing in 'place', would be a critical step towards ensuring a high quality built environment and cultural landscape to secure the well-being of the region.

### 6.1. Investing in place

The expected outcomes of a warmer planet are numerous and will continue to have direct and indirect socio-economic, cultural, and environmental implications for the Okanagan Valley. Yet, any development must be responsive to the cultural landscape and the heritage it holds. The experience of the landscape in the Okanagan is both composite and heterogeneous; it requires knowledge and memory to appreciate the complexity of the place and the people who have lived there since time immemorial, the Syilx / Okanagan People. Place grows from ideas, memories, cognition, narrative – as much as sight, sound, and smell. Place is both social and political. The erosion of place, of landscape, is an erosion of culture.

Meaning is holistic; any element, any ecosystem does not exist in isolation. They always relate to other pieces as a system of interrelationships. The power of the Okanagan landscape, perceived emotionally and understood as a system, is the relationship these pieces and places hold with each other.

### 6.2. Traces on the land

Landscape and heritage are interwoven, connecting past with future. The land presents a dialogue between natural landform and human systems – it connects governance, culture, land management, and ecological wisdom. How the land was governed and

<sup>11</sup> The first workshop, 'Water: Poetics of the Landscape', was held in December 2016 with Okanagan community members, leaders, Syilx Knowledge Keepers, Indigenous youth, researchers, environmental advocates, and other provocateurs. The workshop explored the poetic dimension of water – the meaning and significance it holds, how it interfaces with the land, and relationships people have with it. The workshop was part of a community event series inspired and informed by the 'Social Life of Water' exhibit held at the Okanagan Heritage Museum in Kelowna BC. The community began with sharing stories about the water and the salmon of the Okanagan wherein water, treated as sacred, is articulated and understood as a shared entity.

<sup>12</sup> According to W.-N.Xiang, the application of ecological wisdom holds the "capacity of inspiring and empowering people" (Xiang, 2014, p. 67).

<sup>13</sup> A reconnection to water, place, and each other has become a mission statement advocated especially by youth; youth need to be included as equals at discussion tables to reaffirm an ethics of respect and responsibility.

<sup>14</sup> Other countries have implemented policy frameworks and policy instruments to encourage the sustainable use and conservation of biodiversity. See Perrings et al., 2009.



managed is a visible trace, generating a powerful idea of a unique place. These traces teach us about culture, about the knowledge accumulated over generations through the land; stories, inscribed as landmarks, are simultaneously imbued with a form of precise knowledge and a sacred spirit. Traces on the land enable a connection and relationship to landscape and to place. TEKW conceives of the interconnection between people, plants, animals, and natural systems (as well as the spiritual), as linked to *place*, reinforced through cultural tradition in interactive and reciprocal relationships. Ecological wisdom can provide a base from which to connect ideas about cultural landscape, *beauty*, and policy frameworks for the natural and built environment that support the long-term conservation and sustainable management of biodiversity.

The loss of land, the loss of landscape function, equates to the loss of culture. Arguably, then, land is a human right. A policy for the built environment necessitates a focus on the preservation and conservation of the cultural landscape. Such a policy could articulate priority zones: areas that are at greatest risk or most sensitive in order to secure emphasis on renewal, mitigation, or stewardship.

### 6.3. Ecological wisdom: A process enacted over time

The landscape infrastructure of the region needs to both absorb and enable change; to be flexible and adaptive, without destroying cultural history – the roots of place. The conscious shaping of the landscape, tied to meaning and significance as well as agricultural production, might be considered congruently to management and stewardship practices, to recover the Okanagan's poetic landscape qualities and authentic sensibilities. Poetics of design can and should be pursued in balance with a need for productive and viable land practices. What are the lived experiences on offer and how will these experience shift and adapt, as the region undergoes transition?

This level of envisioning for the natural and built environment needs to be conceived and implemented in phases, as a strategy and a process that, similar to oral narrative, would be interpreted, re-interpreted with new knowledge, and refined over time through its application. Ecological wisdom is interwoven within this *place*, representing the spirit that flows among all within the Valley, not unlike the water that links people there. All can be connected to this wisdom and to the things that are living within the environment through utilising the knowledge embedded within the Okanagan. Ecological wisdom can be used both as a philosophical baseline and practical tool (Patten, 2016; Xiang, 2014) from which to reclaim the cultural landscape, to renew and re-imagine identity. TEKW, as a foundational holistic knowledge system, is the practical management (Patten, 2016) of this place,<sup>15</sup> this home.

A shared vision developed with local expertise is called for, to re-imagine a future with the land as one of reciprocity and respect, to create a productive and experientially rich cultural landscape. This strategy must be developed from the lens of understanding that, though the Okanagan is a diverse environment culturally and ecologically, it is in a state of transformation. A dynamic learning about local ecologies, and experimenting with policy to adapt to a landscape undergoing change, will be required to re-build landscape integrity and to restore meaning and significance: to arrive at a shared ecological wisdom.

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### Topic

Urban ecology and the role of local residents in restoration.

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<sup>15</sup> Ecological wisdom is context dependent. Xiang, 2014.

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