



# ***Cangleska Wakan*: The ecology of the sacred circle and the role of tribal colleges and universities**

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## **Abstract**

Indigenous education and philosophy are rooted in the concept of *relationality* – the relatedness of all things – within the framework of place-based experiences and knowledge. This article focuses on tribal colleges and universities (TCUs) in the United States – in particular, on their dedication to land use and preservation, sustainability and tribal ecological knowledge within their missions of cultural preservation, academic and career development, and community engagement. TCUs are post-secondary institutions chartered by their respective tribal governments to serve as the higher education institutions of the Tribe. In the TCU environment, tribal identities emerge from an understanding of how all things are related. Evidence includes creation stories, tribal languages and place-based knowledge. The circular relationship among place, engagement and identity is often manifested in how land and its resources are preserved, managed and expanded through education, outreach and research. In 1994, the *Equity in Educational Land-Grant Status Act* was passed, granting TCUs endowments for facilities and institutional capacity building in place of land. This article explores the time periods of 1968–1993 and 1994 to today in the context of the development of TCUs, first as place-based institutions preserving tribal identity and later as land-grant institutions preserving tribal environmental and ecological knowledge and resources. The authors provide a number of examples which demonstrate that TCUs exercise the inherent sovereignty of Tribes to provide quality education to their people by incorporating their language and Indigenous knowledge and values.

**Keywords** tribal colleges and universities (TCUs) · indigenous ecology · land-grant institutions · relationality · sustainability · 1994 land-grant · traditional ecological knowledge (TEK)

## **Résumé**

*Cangleska Wakan* : Écologie du cercle sacré et rôle des universités et collèges tribaux – L'éducation et la philosophie autochtones sont enracinées dans le concept de *relationalité* – l'interconnexion de toutes choses – dans le cadre d'expériences et de con-

naissances spécifiques au milieu. Le présent article examine les universités et collèges tribaux (UCT) aux États-Unis, en particulier leur engagement pour l'exploitation et la protection des sols, la pérennité et le savoir écologique tribal, au sein de leur mission portant sur la préservation culturelle, la promotion universitaire et le développement de carrière, ainsi que sur la participation communautaire. Établissements postsecondaires agréés par le gouvernement tribal respectif, les UCT font office d'institutions d'enseignement supérieur de la tribu. Dans leur contexte, les identités tribales résultent d'une appréhension de la manière dont toutes les choses sont reliées, comme le prouvent entre autres les récits de la création, les langues tribales et le savoir spécifique au milieu. Le lien circulaire qui existe entre milieu, engagement et identité se manifeste souvent dans la manière dont la terre et ses ressources sont préservées, gérées et enrichies à travers l'éducation, la sensibilisation et la recherche. En 1994 a été adoptée la loi portant sur l'équité pour le statut éducatif des universités tribales (*Equity in Educational Land-Grant Status Act*), qui accorde aux UCT des dotations non plus seulement en terrains mais en équipements et en renforcement des capacités institutionnelles. Les auteurs analysent le développement des UCT au cours des périodes 1968–1993 et 1994 à aujourd'hui, tout d'abord institutions locales préservant l'identité tribale, plus tard universités agricoles préservant les connaissances et les ressources environnementales et écologiques de la tribu. Elles fournissent plusieurs exemples qui illustrent que les UCT exercent la souveraineté inhérente aux tribus et dispensent à leur peuple une formation de qualité intégrant langage ainsi que savoirs et valeurs autochtones.

## Ecology and sacred relations

Among Lakota people,<sup>1</sup> Indigenous education and philosophy are rooted in our understanding of relationships. In that context, our ecological knowledge can be constructed from our belief in the sacred circle, *Cangleska Wakan*, which represents all of creation. Ecology is the science of the relationships of organisms and can be applied to our traditional teachings. As Indigenous people we have always understood the relationships among living things, because ecological systems are described in our creation stories, in our teachings about our food and medicines and the resources used for our daily and ceremonial lives. As we apply this knowledge to our contemporary experiences as Indigenous people, we consider the way in which science can be used to describe and explain how we know things, often forming insights which are shared as general agreements or truths about a particular system. In recent decades, what has become an emerging field in science and Indigenous

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<sup>1</sup> Lakota people are Plains Indians and are one linguistic group among three (the others are Nakota and Dakota) who currently reside in the northern tier of the United States (US) and the southern tier of Canada. Broken into bands (small, kin-based groups) and council fires (larger groups comprised of bands), the three groups comprise peoples living on 16 reservations in the US and 8 reserves in Canada as well as citizens who live off the reservations and reserves. For more information, see <https://www.canada.ca/en/indigenous-services-canada.html> and <http://www.ncai.org/tribal-directory> [both accessed 13 November 2018].

knowledge systems is *traditional ecological knowledge* (TEK), which is the scholarship of knowing the world through the lens of Indigenous teachings (Pierotti and Wildcat 2000). Indigenous scientists and educators often view modern Western science as detached from the foundational principle of TEK, which is relationships. As Daniel Wildcat advocates in his discussion of climate change and Indigenous knowledge, his *Red Alert*

is a wake-up call ... a challenge to replace a search for humankind's general development along a Western-inspired universal timeline with a rethinking of our diverse human cultural development as shaped by places (Wildcat 2009, p. 11).

The sacred circle, *Cangleska* [circle] *Wakan* [mystery] in Lakota, is symbolic of the interrelatedness of all things. In the early 1930s, Black Elk, a Lakota holy man, spoke to the power of the sacred circle:

Everything the Power of the World does is done in a circle. The sky is round, and I have heard that the earth is round like a ball, and so are all the stars. The wind, in its greatest power, whirls. Birds make their nest in circles, for theirs is the same religion as ours. The sun comes forth and goes down again in a circle. The moon does the same and both are round. Even the seasons form a great circle in their changing, and always come back again to where they were. The life of a man is a circle from childhood to childhood, and so it is in everything where power moves. Our tepees were round like the nests of birds, and these were always set in a circle, the nation's hoop (Neihardt 1959 [1932], p. 164).

Thus the concept of *relationality* (Cajete 1994; Kovach et al. 2015; Styres 2017) – the relatedness of all things in the circle – forms the framework of place-based<sup>2</sup> experiences and knowledge that inform our Indigenous ways of knowing and being in the universe. Furthermore, Nancy Rowe-Henry (2017) proposes that our understandings as Indigenous people can change the concept of sustainability by introducing relationships, reciprocity and ethics as necessary to a better vision of a sustainable future.

Embedded in Indigenous understandings of the world is the recognition that sustainability requires an acceptance of the ways in which diverse ecological and human systems interact to ensure persistent survival. Sustainability means that we must explore ways of living that reduce harmful practices; our aim being to eliminate destruction of resources and relationships. As Indigenous people, we are reminded through everyday acts of the necessity of sustainable practices. For example, Lakota and other Indigenous people recognise that one does not pull sage up by its roots because then it cannot grow back and our ceremonial uses of it would be thwarted. Sage is a medicinal plant vital to the Lakota people and used in Lakota ceremonies to smudge participants and space where the ceremony is conducted. Placing

<sup>2</sup> The term *place-based* (e.g. in place-based education) refers to knowledge, teachings and practices that are related to the geographic location of people and/or institutions.

the flower of our *timpsila* [turnips] back in the ground once the root has been dug up ensures their return and sustains our food resources. All of this knowledge comes from our creation, teaching and ancestral stories as well as wisdom embedded in our tribal languages (Crazy Bull 2017; Price 2010).

Tribal languages are descriptive and often do not have exact equivalents in the English language. For example, in the Lakota language the names of the months (e.g. September – *Wiyawapi Canwape Gi Wi* – Moon when the tree leaves turn brown), the weather of the day (e.g. snow – *mastincala hin yuuptuptute* – large, slowly falling snowflakes), or various foods (e.g. apple – *thaspan* – dark red, edible fruit) are descriptions of what you have or experience rather than single-word expressions.

However, the impact of contact with settler colonisers continues to influence how we participate as Indigenous peoples in restorative practices with our sacred circle. European contact was both deliberately disruptive and violent. It diminished the ability of tribal people to socialise their own children, broke family structures, and removed them from their homelands (Berger 1999; Dunbar-Ortiz 2014). In response to this disruption, Indigenous communities throughout the United States are seeking restoration of the balance that existed in their lives prior to contact. Gregory Cajete (2000) explores the destructive nature of a Western scientific world view on the environment and offers Indigenous values and practices as a path to return to more sustainable practices. He demonstrates that the tension between Western science and Indigenous science can in fact be mediated by tribal ecological knowledge and education.

Some of the best examples of places where restorative practices occur are tribal colleges and universities (TCUs) with their mission of cultural preservation, academic and career development, and community engagement. TCUs are post-secondary institutions chartered by their respective tribal governments to serve as the higher education institutions of the Tribe. For our discussion in this article, we reference the 37 TCUs that are members of the American Indian Higher Education Consortium (AIHEC), an association created to provide advocacy, programme and capacity support for TCUs.<sup>3</sup> AIHEC provides a venue for TCUs to maximise their joint efforts towards increased opportunities and resources.

In the TCU environment, tribal identities emerge from an understanding of how all things are related. The circular relationship among place, engagement and identity is often manifested in how land and all of its resources are preserved, managed and expanded through TCUs' education, outreach and research. In this article, we explore the time periods of 1968–1993 and 1994 to today in the context of the development of TCUs – first as place-based institutions<sup>4</sup> preserving tribal identity,

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<sup>3</sup> According to AIHEC's own website, the consortium came into being in 1973, when "the first six American Indian tribally controlled colleges established AIHEC to provide a support network as they worked to influence federal policies on American Indian higher education." ([www.aihec.org](http://www.aihec.org) [accessed 19 Nov 2018]). Today, AIHEC has grown to 37 TCUs in the United States.

<sup>4</sup> What we mean by a *place-based institution* is that its curriculum includes local flora and fauna, Native husbandry and ecological wisdom, Indigenous culture and community issues, etc.

and later as land-grant institutions<sup>5</sup> preserving tribal environmental and ecological knowledge and resources.<sup>6</sup>

As we explored how we would present the information we compiled for this article, we reflected on the ways in which Indigenous researchers describe how and why we do research (Smith 1999; LaFrance and Nichols 2009). Shawn Wilson (2008) concludes that an acceptable and even necessary aspect of Indigenous research is to be informed by a lifetime of participation in tribal society. Our purposes in this article are to both share our perspectives on the application of tribal knowledge and to affirm the value of Indigenous experience in that application. Our role as researchers cannot be separated from our Indigenous identities. Much of what we share is based in our experience as Native women, as tribal educators, and as active participants in our tribal society.

### **Indigenous ways of knowing – relationality as experienced prior to contact with settler colonisers**

It can be argued that Indigenous cultures have relationality as a basis of their philosophy and belief systems. Relationality embodies our way of looking at and being in the world and describes our interactions with all living and non-living things and their interactions with us. This relationality is realised through story and practice (Pierotti and Wildcat 2000; Cajete 1994; Kovach et al. 2015; Styres 2017).

Tribal star knowledge is one place where the stories and practices of relationality manifest themselves. Among the Lakota and Crow<sup>7</sup> peoples, star knowledge serves as the descriptor of how the sacred circle is built through knowing and understanding how all living things are connected. We also believe that tribal languages provide the best and most grounded descriptions of how we as people know the world, and we recognise that our creation stories are the first means by which we form our understanding of ourselves and our relationships. Furthermore, our teaching stories and the stories of our ancestors give us instructions about how to behave. The use of star knowledge to illustrate what we mean about our relationship with the natural world is a core Indigenous understanding, because the stars and the earth are timeless and do not rely on modern cultural interpretations to be valid.

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<sup>5</sup> A *land-grant institution*, in a nutshell, is a higher education institution in the United States which is legally entitled to a grant of federally controlled land for the purpose of using it to raise funds and establish/run a college or university with a curriculum including applied sciences such as agriculture. This legal entitlement was not extended to TCUs until 1994. The implications are explained in more detail later in this article.

<sup>6</sup> The reason we chose 1968 as the starting point of the first period is that the first tribal college, Navajo Community College (now Diné College) was founded in 1968 in Arizona, thus marking the beginning of the tribal college movement.

<sup>7</sup> The Crow or Absaalooke Nation is a Plains Indian tribe currently located in the southeastern part of central Montana in the United States. Like the Lakota, they were historically a nomadic tribe who quickly adapted to a horse culture in the 1600s. For more information, see [http://www.montanatribes.org/links\\_&\\_resources/tribes/crow.pdf](http://www.montanatribes.org/links_&_resources/tribes/crow.pdf) [accessed 16 August 2017].

For example, in *Lakota Star Knowledge: Studies in Lakota stellar theology*, Ronald Goodman (1992) shares that the oral tradition of the Lakota is considered sacred literature, understood at four levels of consciousness – physical, emotional, intellectual and spiritual – and that these are related to all aspects of Lakota society and philosophy. His research, facilitated through Sinte Gleska University on the Rosebud Sioux Indian Reservation,<sup>8</sup> led to its publication, affirming Lakota understanding of the relationship between what is on earth and what is above, connecting the physical world to the spiritual world represented in star knowledge. Likewise, Crow knowledge shared by Timothy McCleary in *The Stars We Know: Crow Indian astronomy and life-ways* describes the place in which “the sun, moon, and the stars dwell with the clouds and birds” as overarching the earth, and providing a place where sacred beings live (McCleary 2012, p. 15). The Crow believe that the Creator placed sacred power in all things, and that therefore interconnectedness and reliance on all other sacred beings, in this case the stars, is required. Elders are known to say, “All stars are sacred”, and the sacred tobacco that unites the Crows is given to them by the stars (ibid., p. 15). McCleary conducted his research in his role as a faculty member at Little Big Horn College on the Crow Reservation in Montana.

These are illustrations of how Indigenous people use knowledge of all of creation to assert relationality – the relatedness of all things – and to recognise that relationality and sacredness are one. Moreover, Vine Deloria Jr. (1999) distinguishes our understanding of the natural world as Indigenous people as being rooted in our recognition that our human experience is not separate from nature, but rather is *embedded* in nature. Similarly, John Mohawk speaks to the way in which

All the beings upon the Earth follow the Natural or Real ways – the ways of the Creation. And all of those beings are related in that they belong to the family of Creation. They support one another. The Oak Tree gives of its oxygen that the Rabbit may breathe, and the Rabbit gives of its flesh that the Fox may live. And the Fox, in death, returns to the Earth from which the Grasses feed, and the Grass gives of its flesh that the Rabbit may live. All things, in their real ways, support life. It is only when beings leave their real ways that they cease to support Life – that they break away from the Life Cycle. It is the way of the Creation that all things exist in real ways, and in the world of human beings, it is necessary that all things maintain real ways for all life to continue as we know it (Mohawk, quoted in Barreiro 2010, p. 9).

These understandings of our relationship with creation inform our contemporary interpretation of how we live in the world. As Sandra Styres states,

Locating ourselves in relation to everything we do is one of the key foundational principles of Indigeneity (Styres 2017, p. 7).

Therefore, what we know must always be described in the context of who we are and our location in the world.

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<sup>8</sup> The Rosebud Sioux Indian Reservation, which primarily houses the Sicangu Band of the Brule of the Lakota, is located in south central South Dakota.

## Indigenous ways of knowing and the impact of education post-contact with settler colonisers

In order to understand the context of place-based institutions like TCUs, it is useful to consider how Indigenous knowledge was impacted by contact with European settler colonisers. While social and cultural disruption, war and forced removal from land began for Native peoples in the Americas in 1492<sup>9</sup> and has persisted through subsequent centuries to the present day, some of the most detrimental land reduction and removal policies resulted from systematic deliberate efforts through treaties, executive orders and laws, and the establishment of territories and states in the 1800s and early 1900s (Shelton 2001; Wilkinson and AIRI 2004; Newton et al. 2005). The purpose of these policies was to sever the ties that Indigenous people had with their philosophy of the sacred circle where all things are related and spiritual.

US government laws and policies, in particular the *Dawes General Allotment Act* (GoUSA 1887a) and the *Indian Reorganization Act* (GoUSA 1934)<sup>10</sup> negatively affected the ability of Indigenous peoples to build development capacity and sustainability (Shelton 2001; Wilkinson and AIRI 2004; Newton et al. 2005). Due to war and westward expansion, tribal bands were often separated from their traditional ancestral lands and moved onto reservations (Shelton 2001). As the ability to live off the land and resources such as buffalo and fish were drastically diminished, tribal people were forced to move closer to federal agency offices<sup>11</sup> and survive on government-provided rations. This disruption to a traditional way of life and the ability to use land and natural resources to provide food, clothing, shelter and ceremonies had drastic effects on individual, community, social and spiritual structures (Shelton 2001).

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<sup>9</sup> In 1492, leading a Spanish expedition to find a sea route to India, China, Japan and the Spice Islands, Italian explorer Christopher Columbus (1451–1506) discovered a “new world”. This triggered colonisation of South and North America by the Spanish, and soon also by the Portuguese, the French and other European powers. Colonisation involved appropriating land, disowning and displacing its Native owners/inhabitants.

<sup>10</sup> The *Dawes General Allotment Act* provided for the distribution of Indian reservation land among individual Indians, expecting them to take on a role modelled on white farmers. However, the effect of this Act was that it weakened the social structure of the tribe; many nomadic Indians were unable to adjust to farming; others were cheated out of their property; and reservation life deteriorated, with many community members suffering from disease, poverty and despondency. The act also allowed white people, who by 1932 had acquired two-thirds of the 138,000,000 acres held by Native Americans in 1887, to buy any “surplus” land (Britannica 2018). A survey carried out in 1928 (Meriam 1928) revealed shocking conditions on the reservations and led to the passing of the *Indian Reorganization Act*, also known as the *Wheeler-Howard Act*, in 1934. It aimed to decrease federal control of American Indian affairs and increase Indian self-government and responsibility.

<sup>11</sup> A *federal agency office* is an office established by the federal government to carry out oversight and management. Local federal agency offices were created on reservations as they were established and referred to as “agency offices”.

Under the *Indian Reorganization Act* (IRA) (GoUSA 1934), the Department of the Interior<sup>12</sup> facilitated the adoption of IRA governments, refusing to acknowledge traditional tribal governance systems used since time immemorial (Shelton 2001). The IRA created elected governments (e.g. tribal councils or business committees) and the adoption of tribal constitutions, requiring the approval of the Bureau of Indian Affairs Superintendent on all legislative actions by tribal councils (Shelton 2001). The paternalistic government structures, similar to state and federal governments, impacted family, community and social structures, resulting in the loss of autonomy and power over ourselves as individuals and communities, and power over our resources. This led to dependency on a social welfare system resulting in centralised poverty that spans two to three generations or more (Echo Hawk Consulting 2015).

Decimation of family and community relationships and the ability to navigate the loss of those relationships was accomplished through religious and educational institutions and the development of the social welfare system. This decimation runs deep in family and community structures, ranging from the loss of kinship knowledge and practices, to inevitable poor health and the lack of access to medicines, to a change in diet that impacts overall community health, to how people use and create waste today (Echo Hawk Consulting 2015). The change in diet was drastic, swinging from food available from natural resources to large-scale hunger when reservations were created (Shelton 2001). Rations eventually came in the form of government-provided canned and processed foods, leading to today's prevalent health issues such as obesity, heart disease and diabetes (Echo Hawk Consulting 2015).

As the lack of housing began to be addressed in the mid- to late 1960s, clustered housing units were created in and around tribal communities. The clustered housing units brought families from different communities together as neighbours, without regard to possible historical tensions or relationships. This move continued the decimation of families and communities and destruction of our social kinship system and traditional way of life.

## **Breaking the sacred circle – education as a weapon**

From the beginning of contact with European settler colonisers, colonisation had a destructive impact on our formal and informal education practices. Over time, increasingly devastating changes to how Indigenous peoples interacted with the earth and natural resources occurred, and education was used as a weapon in this war against Indigenous thought and philosophy. The breaking up of tribal group identity and individual family relationships diminished the deep understanding of

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<sup>12</sup> Initially assigned to the Department of War, Indian Affairs was transferred to the Department of the Interior in 1849 (Shelton 2001, p. 13). The Department of the Interior (DOI) is one of 15 government departments within the executive branch of the United States' Federal Government (see <https://www.doi.gov/whoware/history/> [accessed 13 November 2018]). The DOI manages the United States' public lands and natural resources and the trust responsibilities to American Indians and Alaska Natives.



relationships characterised by traditional ecological knowledge. Whereas Native people historically socialised their citizens through various formal and informal mechanisms grounded in living well within their physical place, socialisation became about adapting to removal, warfare, and disenfranchisement from traditional relationships. In a conversation between Paul Boyer and anthropologist Jack Weatherford published in the *Tribal College Journal* under the headline “Indians are America’s Teachers” (Boyer 1992), Weatherford stated that the ideologies that influenced conquest were twofold: conversion to Christianity and/or the desire to use the resources that Indians did not, in the European conquerors’ view, use “adequately”. Identifying the ideologies behind conquest and westward expansion help us to understand how important educational strategies were to changing Indigenous lifeways.

From first contact until the mid- to late 1800s, the white colonists and governments they established used several strategies to influence the practices and experiences of Native people. These ranged from deliberately removing young people, mostly young men, from their homes and villages and sending them to Europe or to East Coast schools for a formal education to sending missionaries to villages to teach Christianity in a manner that proved detrimental to the survival of Indigenous cultures (Wilder 2013). These educational efforts, intended to “civilise” the Native population, were poorly disguised attempts to destroy Indigenous ways of living. Many of the most prestigious higher education institutions in the United States, such as Harvard University and Dartmouth College, began with a mission that included the “civilisation” of “savages” through education (Calloway 2010).

Education was a critical instrument of the federal government and its allies, especially Christian churches, promoting the destruction of religious<sup>13</sup> knowledge through denigration of cultural practices and teachings, fostering individualism in lieu of communal and familial ties, and suppressing traditional ways of living, including expertise in knowing how to hunt, gather, fish and otherwise live off the land. The federal government’s policies included support for over 200 mission schools whose specific focus was assimilation and Christianisation at the expense of retaining Native identity and tribal religious practices (Warner and Grint 2015). The perceived choices were “extermination or civilisation” (Adams 1995, p. 15, quoting Carl Schurz, a former Commissioner of Indian Affairs), and by promoting the mission school system, the US government had moved from the idea of “outright physical extermination of Native peoples” to the civilisation phase of its interactions with Indigenous people (Smith 2009, p. 4).

Colonial contact, removal from homelands, westward expansion, and settlement by Spaniards and Russians along the West Coast dramatically changed the way in which Indigenous people lived off the land and its resources. Trade was disrupted, as was the ability of people to have access to traditional hunting, gathering, farming and fishing territories. The commercial nature of contact, perhaps best reflected

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<sup>13</sup> In this article, we use the term *religious* to indicate the particular ways in which the referenced Indigenous people practise their spirituality. The term *spirituality* might also be used in reference to knowledge and practices.

by the killing of buffalo and the establishment of canneries, changed both societal structures and the relationship of Indigenous people to the rest of creation which historically provided for their well-being. Buffalo were now hunted for their hides, while their carcasses were left to rot on the plains. Railroad tracks prevented the movement of northern and southern buffalo herds, limiting their access to grasslands and water while making them easy prey for the guns of sports hunters and fur traders. Canneries commercialised fishing that had been the subsistence of coastal tribes for thousands of years (Berger 1999; Dunbar-Ortiz 2014)

By the late 1800s, and right up to the 1960s, boarding schools operated by the federal government and by Christian churches reflected the most intentional disruption of tribal life by taking young people from their families and attempting to assimilate them. This assimilation included promoting what were viewed as traditional European roles for men and women, i.e. men as farmers and carpenters, and women as seamstresses and maids. During this period, the dominion of humans over nature was an essential part of teaching Christian practices. This philosophy of dominion combined with assimilation practices changed the very nature of Indigenous relationships with the sacred circle.

In the 1950s, the government policy of relocation of Native people from their rural and reservation homelands to urban areas, along with the deliberate termination of federal recognition of several tribes, further diminished the connection of people to their land and to each other. Public schools that replicated schools in White mainstream society were established on many reservations. Natives were forced by residency to attend schools in towns and cities that did practically nothing to support tribal identity or cultural needs. This type of schooling, combined with crushing poverty and lack of access to resources such as health care, housing and transportation, exacerbated the decimation of cultural connections. All of these conditions, along with the “Great Society” programmes<sup>14</sup> of the 1960s and 1970s, which expanded access to education through community colleges, and social protests, together with the civil rights movement,<sup>15</sup> led Indigenous people into dramatic social change (Deloria 1969; Boyer 2015).

Awareness of this history and of the impacts of practices, laws and policies imposed on Native people, on communities as a whole, and on land ownership and use are central in understanding TCU students in their evolution of education and restoration in their relationship to place. Through this knowledge, TCU students are able to situate themselves in the relationality (Wilson 2008) and spirituality of their homelands providing the resources for prosperity and survival. Through this connection to place-based education and traditional ecological knowledge, students are enabled to situate their identity, heal individually, and provide support and healing to the community they are active members of.

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<sup>14</sup> The *Great Society* programmes were a whole set of poverty reduction reforms initiated by US President Lyndon B. Johnson (in office 1963–69).

<sup>15</sup> The American civil rights movement started in the late 19th century and culminated in the *Civil Rights Act of 1964* (GoUSA 1964) and the *Indian Civil Rights Act of 1968* (GoUSA 1968).

## Mending the circle: tribally controlled education

Making this connection to place and traditional knowledge requires both community and institutional responses, and a revolution occurred with education for Native people when tribal citizens decided in the late 1960s to develop their own tribally controlled education systems and practices. This revolution was part of a rise in the political discourse about civil rights in the United States, which accompanied a rise in political and identity activism among American Indian and Alaska Native people, including the American Indian Movement.<sup>16</sup>

The era of tribal self-determination and self-governance, which began in the 1960s, helped Indigenous people realise that they could create school systems and implement educational practices that came from, were led and operated by Indigenous people for Indigenous people. The passage of federal laws about civil rights and environmental protection<sup>17</sup> occurred simultaneously with the beginning of the tribal college movement, which had grown out of the American Indian “self-determination” movement of the 1960s. Beginning with Diné College (formerly Navajo Community College), established in Tsaile, Arizona in 1968, tribal colleges quickly began to spring up around Indian country. Native-controlled, bilingual–bicultural schools for children such as Rough Rock Community School in Chinle, Arizona (within the Diné Nation, formerly Rough Rock Demonstration School) and the Red School House in Minneapolis, Minnesota also emerged during this time (Stein 1992).

The vision of tribally controlled education is the revitalisation and restoration of tribal ways of living, languages and social practices. Our traditional ways are at the heart of our sovereignty. Tribal sovereignty signifies the inherent right to govern and take care of your own people, including use of your heritage language, culture, stories and traditions which embody the history and knowledge of your people. This includes the intentional engagement of Indigenous understanding of the land and its resources and how to restore the beliefs and practices that appropriately use and manage these resources. Indigenous ways of knowing began to inform the pedagogy of teaching and learning promoted in our schools, early learning centres and post-secondary institutions. Degree programmes at Associate, Bachelor’s and Master’s levels in Native studies, Tribal studies, or with a predominant Native emphasis have been created at TCUs (examples are a Master’s degree in Lakota Leadership at Oglala Lakota College in South Dakota; a Master’s degree in Native Environmental

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<sup>16</sup> Founded in 1968, the American Indian Movement (AIM) has “transformed policy making into programs and organizations that have served Indian people in many communities. These policies have consistently been made in consultation with spiritual leaders and elders ... The movement was founded to turn the attention of Indian people toward a renewal of spirituality which would impart the strength of resolve needed to reverse the ruinous policies of the United States, Canada, and other colonialist governments of Central and South America. At the heart of AIM is deep spirituality and a belief in the connectedness of all Indian people” (Wittstock and Salinas 2006).

<sup>17</sup> In particular, these laws were the *Indian Civil Rights Act of 1968* (GoUSA 1968), the *National Environmental Protection Act of 1969* (GoUSA 1970), and the *Indian Self-Determination and Education Assistance Act of 1975* (GoUSA 1975).

Science at Northwest Indian College in Washington State; and an Associate of Arts degree in American Indian Studies at Fond du Lac Tribal and Community College in Minnesota). Course content specifically focusing on Tribal studies as the foundational knowledge or with tribal knowledge integrated is the norm at these institutions (examples are Tribal Enterprises and Entrepreneurship at Diné College; Geography of the Borderlands at Tohono O'odham Community College in Arizona; and Native and Modern Perspectives on Psychology at Sinte Gleska University in South Dakota).

Twenty-nine of the 35 full members<sup>18</sup> of AIHEC are chartered by their respective Tribes through tribal constitutional authority. The mission of these institutions is dual – to promote Indigenous culture and knowledge, and to create opportunities for employment as well as economic and community prosperity. The creation of TCUs along with the development of Native Studies programmes and initiatives at other post-secondary institutions has led to the restoration of traditional ecological knowledge and stimulated a return to more environmentally sustainable and culturally responsive practices (Periotti and Wildcat 2009, Crazy Bull 2015).

Prior to their designation at land-grant institutions in 1994, TCUs engaged in a range of educational and community-driven practices. Most significant was the opportunity taken by TCUs to adequately describe their knowledge. The early years of TCUs were heavily invested in the development of curriculum and supplemental materials for teaching at all grade levels, but especially at college (i.e. undergraduate) level. This investment was crucial, because tribal educators and community members were translating their traditional knowledge into materials that could be used in the classroom, thus moving beyond governance of educational institutions into educational delivery. This translation changed research, instruction, curriculum and assessment. Many TCUs pioneered the development of classes in tribal languages, history and philosophy. TCUs offered many of the first programmes in Native Studies and provided many of the first Native academic teaching staff in the United States.

All of these firsts were critical to implementing the vision of tribal colleges as grassroots institutions promoting both higher education and community development. The natural evolution of the role of these institutions – from innovative developers of first courses, first research and first Native teachers into more robust engagement with promoting place-based and traditional knowledge – is often overlooked in discussions and analyses of TCUs' mission and programmes.

As we developed these education programmes, we were learning about ourselves and collecting the stories that would inform our relationships and benefit future generations – stories about our understanding of land, air and water, and of our relationships with other living things. We were collecting the stories of how colonisation, removal from our land, war, life on officially designated reservations, relocation to cities and termination of federal recognition affected our ability to prosper. We were

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<sup>18</sup> AIHEC has two categories of members, full members (accredited institutions), and associate (developing, not yet accredited) members. As of December 2018, there are 35 full members and 2 developing institutions.

developing the practices of self-determination and declaration of identity. We were reasserting ownership of the places in which we lived. These acts of restoration of our traditional ways came from the renaissance in Indigenous rights, the recognition of the value and opportunity for tribally controlled education, and – most importantly – from the multi-generational and inclusive approach to knowledge creation and integration (Crazy Bull 2009).

During this time, we were defining contemporary knowledge using our own terms. As Cajete shares in *Native Science: Natural Laws of Interdependence*,

Native science stems from a deeply held philosophy of *proper relationship with the natural world* that is transferred through direct experience with a landscape, and through social and ceremonial situations that help members of a tribe learn the key relationships through their participation and their “*ella*”, as the Yupiaq would say<sup>19</sup> (Cajete 2000, p. 67; emphasis added).

Similarly, in *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants*, Robin Wall Kimmerer (2013) speaks to the many ways in which we capture knowledge to describe our experiences in an effort to take control of our own narrative. Among the Mohawk,<sup>20</sup> displacement impacted their use of natural materials for their traditional and household arts such as basket making. Kimmerer describes how the weaving of baskets brings together plants that live together in the wetlands, and are representative of destruction returning to the whole through the creation of the basket. The making of strands through picking and stripping materials such as reeds represents the taking apart of the whole. Making the basket restores the whole. It is this profound knowledge that is gathered by the educators engaged in the establishment of tribally controlled education. The beauty and interdependence of this creation represents Kimmerer’s understanding of what it means to have a garden that is both a material and a spiritual experience. Her understanding is reflective of the evolution of tribal people’s understanding of how to restore cultural practice and knowledge in contemporary institutions.

Deloria and Wildcat (2001) observe that modern education is economic in nature, and that restoration of traditional education where the relationship of the individual to society (viewed as defined by relationships) is paramount to our transformation into truly sovereign nations. They thus regard education as a political act. We also recognise the political vision of tribally controlled education as an act of self-determination and tribal sovereignty. The importance of land and its connection to tribal prosperity was prioritised by the founders of tribal colleges, so that many institutions created pathways for the exploration of land issues and the development of

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<sup>19</sup> Earlier in his book, Cajete describes the *ella* of the Yupiaq as their awareness or consciousness, the way they make sense of the world. This concept and other epistemological frames among Yupiaq peoples must be notably credited to the work of Angayuqaq Oscar Kawagley, whose educational research uplifted Indigenous science education for over two decades. The name of the Yupiac people is also variously spelled Yupiaq or Yup’ik or YUPIIT or YUPIAT. They are native to western, southwestern, and southcentral Alaska and the Russian Far East.

<sup>20</sup> The Mohawk people are native to what is now upstate New York and adjacent territories around Lake Ontario and the St. Lawrence River in Canada.

economic initiatives (Boyer 1989). For example, Oglala Lakota College engages in the study of poverty on the Pine Ridge Reservation in South Dakota, and Sinte Gleska University, also in South Dakota, focuses on economic and social research closely linked with land and resources to promote economic projects. Partnerships with tribal programmes gave students field experience working with wildlife, water resources, land conservancy and plants.

Prior to the 1994 land-grant designation, AIHEC and TCUs also supported numerous initiatives that promoted environmental sustainability. Programmes such as Promoting Environmental Restoration/Management for American Indians (PERMA, funded by the US Department of Energy) educated skilled workers in both science and traditional knowledge (Cordero 1991). In the early 1990s, Fort Berthold Community College (now Nueta Hidatsa Sahnish College) in North Dakota ran one of the first tribal college programmes training farmers and ranchers funded by the Farm Home Administration (FmHA) situated within the US Department of Agriculture (USDA). The programme was innovative in that it took education to constituents through home-based training and education services (TCJ 1992).

## Contemporary experience of TCUs with the ecology of the sacred circle

Over time, as TCUs became more adept at navigating US higher education, it became clear that additional opportunities existed that combined the place-based identity of TCUs with federal resources and broader partnerships. This led to the designation of TCUs as land-grant institutions. Through the passage of the *Morrill Act* (also known as the *Land-Grant College Act*) in 1862 (GoUSA 1862), a land-grant institution was established in each state in the United States. The Act provided a parcel of land (30,000 acres per congressional representative) for each land-grant institution to sell and use for an endowment to fund agricultural and mechanical arts (Philips 2003). In 1890, Historically Black Colleges and Universities (HBCUs)<sup>21</sup> were acknowledged as land-grant universities though a *Second Morrill Act* (GoUSA 1890), the same year in which the Wounded Knee Massacre took place in South Dakota. Wounded Knee is often considered a marker of the end of the Plains Indian wars.<sup>22</sup> It was not until 1994, i.e. over a hundred years after the passage of the Second Morrill Act, that the *Equity in Educational Land-Grant Status Act* was passed as part of President Bill Clinton's reauthorisation of the *Elementary and Secondary*

<sup>21</sup> The term Historically Black Colleges and Universities (HBCUs) refers to higher education institutions established before the passing of the *Civil Rights Act of 1964* (GoUSA 1964) to serve the educational needs of black Americans.

<sup>22</sup> In the Plains Indian wars, which lasted from the early 1850s to the late 1870s, Native Americans and the government of the United States fought over control of the Great Plains between the Mississippi River and the Rocky Mountains. In the Wounded Knee Massacre on 29 December 1890, 150–300 Native Americans were killed by US soldiers in the area of Wounded Knee Creek in South Dakota.

*Education Act* (ESEA) (GoUSA 1994),<sup>23</sup> according land-grant status to Tribal Colleges and Universities. Under the 1994 Equity Act, TCUs were granted endowments for facilities and institutional capacity building in place of land. Research and extension grants<sup>24</sup> provided to other land-grant colleges under the *Hatch Act* (GoUSA 1887b) and the *Smith-Lever Act* (GoUSA 1914) were extended to TCUs. A chronological overview of these significant historical and legal milestones impacting Native American rights and education is provided in Table 1.

A majority of the TCUs are located on large resource-rich land bases that include agricultural land, timber, water, coal, natural gas, and other mineral-rich resources. Prior to the passage of the *Indian Self Determination and Education Assistance Act* (ISDEAA), also known as the *Indian Educational Reform Act*, in 1975 (GoUSA 1975), the federal government, through the Department of the Interior, managed these resources. Using ISDEAA, many tribal nations have assumed management of programmes from the federal government and use tribal ecological knowledge in partnership with TCUs. TCUs provide place-based instruction offering tribal citizens an opportunity to learn from and on their homelands, leading to restoration of Indigenous ways of knowing and being in our communities. Indigenous knowledge is affirmed or modified leading to restorative practices and teachings in contemporary systems (Crazy Bull 2010).

For 25 years prior to the passage of the *Land Grant Act* (GoUSA 1994), TCUs demonstrated success in education and retention of Native students (Philips 2003). The land-grant mission was complementary to the success of TCUs and further supported revitalising a tribal land ethic, protection of tribal sovereignty with the preservation of tribal homelands, developing tribal human resources as resident expertise, and connecting the well-being of Native peoples with the well-being of tribal homelands (Baird 1996). Funding was now available in areas of agricultural and food programmes; land and resource use and management; environmental science; environmental (public) health; and technical and applied education such as training technicians.

### TCU academic degrees

As a result, several TCUs have developed and now offer two- and four-year degrees in environmental science, forestry, hydrology, and wildlife and fisheries science. A few examples are Northwest Indian College (Bachelor of Science degree in Native Environmental Science), Sitting Bull College with campuses in North and South Dakota (Associate, Bachelor and Master of Science degrees in Environmental

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<sup>23</sup> The original *Elementary and Secondary Education Act* (ESEA) came into force in 1965. It was reauthorised several times.

<sup>24</sup> An *extension grant* constitutes funding for *extension education*, a type of informal education offered by a college or university which extends an educational opportunity to people who are not enrolled as regular students. In the context of this article, it means that TCUs pass on knowledge, especially agricultural know-how to farmers. A related term is *extension services*, which refers to the provision of management of programmes and projects for change.

**Table 1** Relevant historical and legal milestones 1862–2018

Year	Historical event or title of legal Act	Implications
1862	<i>Morrill Act</i> also known as (aka) the <i>Land Grant College Act</i>	Establishment of a land-grant institution in each federal state of the United States and provision of a parcel of land (30,000 acres per congressional representative) for each land-grant institution to sell and use for an endowment to fund agricultural and mechanical arts
1887	<i>Dawes General Allotment Act</i> aka <i>Dawes Severalty Act</i>	Distribution of Indian reservation land among individual tribesmen, expecting them to take on a role modelled on white farmers
1887	<i>Hatch Act</i> aka the <i>Agricultural Experiment Stations Act</i>	Strengthening of the capacity of land-grant universities to research agricultural problems experienced by rural citizens. The Hatch Act funded land-grant colleges in order to create a series of agricultural experiment stations (thereby laying a foundation for the cooperative extension services created by the Smith Lever Act in 1914)
1890	<i>Second Morrill Act</i> aka the <i>Agricultural College Act</i>	Acknowledgement of Historically Black Colleges and Universities (HBCUs) as land-grant universities
1914	<i>Smith-Lever Act</i>	Creation of a Cooperative Extension Service associated with each land-grant institution
1934	<i>Indian Reorganization Act</i> aka the <i>Wheeler-Howard Act</i>	Efforts to decrease federal control of American Indian affairs and increase Indian self-government and responsibility
1975	<i>Indian Self Determination and Education Assistance Act (ISDEAA)</i> aka <i>Indian Educational Reform Act</i>	Assumption of the management of federal government programmes by tribal nations and the use of tribal ecological knowledge in partnership with TCUs
1994	<i>Equity in Educational Land-Grant Status Act</i> aka the <i>Improving America's Schools Act of 1994</i>	Acknowledgement of Tribal Colleges and Universities as land-grant universities

Partly adapted from NIFA (2018)



Science), Salish Kootenai College in Montana (Associate and Bachelor of Science degrees in Forestry, Hydrology, Wildlife and Fisheries), Fond du Lac Tribal and Community College (Bachelor of Science degree in Environmental Science), and Sinte Gleska University (Associate and Bachelor of Science degrees in Environmental Science).

### **TCU land-grant extension and research programmes**

In addition to formal teaching, TCU land-grant extension programmes provide informal educational outreach focused on community issues and needs. Examples include the areas of nutrition, food production and agricultural management (training fishers, farmers, ranchers); community resources and economic development (Community Health Representatives, home health providers); family development and resource management; 4-H<sup>25</sup> and youth development; leadership and volunteer development; natural resources and environmental management; and tribal land issues (NIFA 2015). The models for this work are plentiful: At Bay Mills Community College (BMCC) in Michigan, 40-acre Waishkey Bay Farm provides opportunities for tribal youth in pasture-based raising of beef and chicken, cultivation of a community garden, blueberry production, and management of a greenhouse powered by solar and wind energy (BMCC 2017). Fond du Lac Tribal and Community College (FDLTCC) Environmental Institute in Minnesota (FDLTCC 2017) engages students and community members in projects such as the Bimaaji'idiwin Ojibwe Garden Program to promote traditional Ojibwe crop systems and the St. Louis River Watch project, a youth-based programme to monitor water quality.

Furthermore, TCUs also provide workshops that range from classes in hide tanning, sewing, canning and food preservation to agricultural management, as the TCU extension and research land-grant programmes often overlap in several areas. Food and nutrition is an example where the traditional use and preservation of wild rice or buffalo may be taught under an extension programme and the health and wellness impacts of these traditional resources and foods may fall under a research grant.

### **Sustainability models**

Another aspect is that the research mission of land grants acknowledges the validity of Indigenous knowledge; thus TCU research is conducted to impact the well-being of Native people. Place and culture are integral to Indigenous research and to addressing the social issues (Lambert 2015). For example, the College of Menominee Nation (CMN) in Wisconsin was founded in 1993. In the same year, the Sustainable Development Institute (SDI) was created at CMN through a joint effort with a

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<sup>25</sup> With its four-petal clover logo, where each petal is marked with an H (referring to Head, Heart, Hands and Health), 4-H is the United States' largest youth development organisation. For more information, see <https://4-h.org/about/history/> [accessed 16 November 2018].

lumber manufacturing company called Menominee Tribal Enterprises (Dockry et al. 2016). Recognising that sustainability models generally focus only on environment, society and economics, somewhat neglecting Indigenous *cultural* values, SDI created a dynamic, interrelated six-dimensional model. The SDI model acknowledges that change and complexity are key factors in the model and is reflective of that dynamic. The SDI model includes

- (1) land and sovereignty;
- (2) natural environment (which includes human beings);
- (3) institutions;
- (4) technology;
- (5) economics; and
- (6) human perception, activity, and behaviour (Dockry et al. 2016, p. 129).

In 2005, CMN administration designated “Sustainable Development 100: Introduction to Sustainable Development” a compulsory foundation class, ensuring that every student has some knowledge of sustainable development. The model is now being applied in climate change planning in the region and can be used by Indigenous nations who want to incorporate their Indigenous ecological knowledge.

Also demonstrating broader impact are the students at the Lummi Indian School of Aquaculture, the precursor to Northwest Indian College (NWIC) in Washington State, who learned traditional knowledge and contemporary skills to preserve their way of life based in their relationship with the sea. This led to the establishment of the National Indian Center for Marine Research and Environment in 2000,<sup>26</sup> which eventually evolved into the Salish Sea Institute at NWIC. The Institute supports research, tribal engagement, partnerships with government agencies and educational institutions, and educational programmes – all towards preservation of the Coast Salish people’s way of life.<sup>27</sup>

The Fort Peck Buffalo Project is another example of broad impact, research and practice, and one of the close partnerships that TCUs are both integral to and/or lead. The project was led by Fort Peck Community College (FPCC) in Montana in partnership with the Fort Peck Assiniboine & Sioux Tribes, Montana State University (MSU) and the World Wildlife Fund (WWF). Using a mixed-methods approach, this work integrated research, education and service focused on health and well-being of the tribal people on the Fort Peck reservation in eastern Montana (Smith et al. 2017). The study included four strands: (1) Impact of Buffalo Restoration; (2) Buffalo People Summit; (3) The Path Back: A History of Buffalo Advocacy by the Fort Peck Tribes; and (4) Buffalo Values Survey (Smith et al. 2017). The partnership not only recognised the relationship with and lessons learned from the Buffalo Nation towards the health and well-being of the community, but specifically noted the positive change that can emerge from similar partnerships uniting to address

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<sup>26</sup> See TCJ (2000).

<sup>27</sup> The Coast Salish people are native to the Northwest coastal lands of the United States and Canada, ranging from what is currently the state of Oregon to the state of Alaska.

common issues by implementing Indigenous knowledge in the community and sustainability of such projects. Bison management and restoration projects are common at TCUs in the Northern Plains such as United Tribes Technical University in North Dakota and Sinte Gleska University in South Dakota.

In other regions in the US, TCUs are also leading important work that demonstrates relationality in research and practice. For example, in the Northern Woodlands, TCUs have engaged in the restoration of *manoomin* [wild rice], a traditional food for the Ojibwe people,<sup>28</sup> through research projects. At White Earth Tribal and Community College (WETCC) in Minnesota, research aimed at protecting wild rice has focused on monitoring water levels and mapping Lower Rice Lake, finding that the original watershed boundaries had been maintained for over 100 years (Price 2013). Fond du Lac Tribal and Community College, in partnership with the University of Minnesota and Fond du Lac Tribal Resource Management Division, provided middle and high school and college students with an opportunity to study six lakes to determine historical wild rice production (TCJ 2010).

Finally, Navajo Technical University (NTU) in New Mexico recently received accreditation for an Associate degree of Applied Science Veterinary Technician from the American Veterinary Medical Association (AVMA) (Vandever 2017). Programme accreditation from AVMA allows students to qualify to take the national exam for certification. NTU is the first and only TCU currently offering a veterinary science degree programme allowing students to gain education and skills in a resource needed in tribal communities.

This collection of examples demonstrates that TCUs epitomise and represent the exercising of the inherent sovereignty of Tribes to provide education and to incorporate language and Indigenous knowledge and values in the education system of their people.

### **Vision for the next seven generations – restoration of the ecology of Cangleska Wakan**

Returning to *Cangleska Wakan*, we believe that the sacred circle is at the heart of our philosophy that Indigenous people have a deep connection to the land and to resources such as water, trees, flora and fauna. This philosophy arises from the creation stories of tribal nations or bands that affirm emergence from and use of land and its resources. Our recognition and use of contemporary terms to describe the *Cangleska Wakan* – relationality and sustainability in particular – link us to a sense of place as part of our learning process. We also accept that this learning process is dependent on where the individual is at in their life journey.

Because of the TCUs, contemporary tribal communities are ready with environmental knowledge to address ecological issues and concerns. TCUs will continue to

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<sup>28</sup> The Ojibwe people, also known as the Anishinaabe or Chippewa, are native to the Great Lakes region of the United States and Canada, but also range into the plains regions of Ontario and Manitoba (Canada) and the States of North Dakota and Minnesota.

focus on Indigenous ways of knowing by refining and developing pedagogy and curriculum. Building the capacity of educators to provide the best teaching and learning environment for Native students is an essential part of rediscovering the deep connection of people to the sacred circle. In keeping with the role of tribal colleges as community-centred institutions where the community's learnings and its needs are shared and addressed, TCUs will continue with community engagement. There are many partnerships and relationships with and among activists, tribal college faculty members and students, and agencies and organisations that promote research, extension and education in tribal communities and with students. TCUs continue to focus on their mission of cultural restoration by creating opportunities for intergenerational and experiential education.

Increasingly, our educated and culturally competent students and their families will respond to issues of environmental justice – protecting our people and our resources. In 2016 and 2017, the Standing Rock Reservation, which straddles North Dakota and South Dakota in the north-central United States, was the site of a protest against the Dakota Access Pipeline being routed under the Missouri River north of the Standing Rock Reservation. Tribal officials and citizens were deeply concerned about potential contamination of their ground water and drinking water. The participants, who considered themselves to be water protectors and not protestors, drew international attention and thousands of people made trips to the camps set up near the site of the pipeline. Tribal college students and their institutions stood with the water and with each other (His Horse Is Thunder 2017). Across cultures, class and race, our people gathered at Standing Rock with our allies to protect our water.

We recognise that the conditions of poverty and deprivation in our communities were not caused by us, but that we are the people who must respond. Our definition of prosperity as Indigenous people means healthy lifestyles, healthy relationships and healthy individuals. Through our own knowledge and creativity and with the help of partnerships that appropriately use our resources, we can find innovative and generative ways to be prosperous while honouring *Cangleska Wakan*, our sacred circle.

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