The dispute over wild rice: an investigation of treaty agreements and Ojibwe food sovereignty

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Abstract: The treaties established between the United States federal government and American Indian nations imply U.S. recognition of Native political sovereignty. Political sovereignty encompasses not only the ability to govern oneself but also self-determination regarding resource use, including food. This paper addresses The White Pine Treaty of 1837, which acknowledges the Ojibwe people's right to hunt, fish, and harvest wild rice in their traditional landscape. This acknowledgement by extension recognizes the Ojibwe's right to food sovereignty. From the perspective of the Ojibwe, continuing these activities requires not simply controlling access to important food resources but also protecting their rights to maintain traditional relationships with the plants and animals that provide food and to manage the landscapes that provision them. Therefore, true food sovereignty necessitates protecting a people's relationships with the landscape. Appropriation of wild rice over the past century, however, has threatened food sovereignty among the Ojibwe because it has compromised their ability to maintain their traditional relationship with a staple food resource that is also central to their identity. In light of the White Pine Treaty, this threat to the Ojibwe's food sovereignty is effectively a threat to their political sovereignty and, we argue, a violation of the treaty agreement.

Keywords: Indigenous Food Sovereignty; Wild Rice; Genetic Engineering; American Indian Treaty Law

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Introduction

In recent years, Ojibwe communities in Minnesota have been at the center of a legal dispute over ownership claims to one of their most significant resources: wild rice. Wild rice has served as a staple food for the Ojibwe people for over two hundred years (Vennum 1988; Moodie 1991). It has also occupied a pivotal space within their origin stories and has been the focus of numerous

ceremonies and spiritual observances (Jenks 1901; Vennum 1988; LaDuke 2008; Walker and Doerfler 2009). It has fostered community and cooperation among the Ojibwe and was at one time an important part of their economy (Vennum 1988; Walker and Doerfler 2009; Child 2014). Wild rice is an essential part of what it means to be Ojibwe – Ojibwe people understand their history, cultural heritage, and very identity through their relationship with the plant and its ecosystem. The United States formally recognized the centrality of this relationship to the Ojibwe people in the White Pine Treaty of 1837, which secured the tribe's access to wild rice beds on territory ceded in what are now the states of Minnesota and Wisconsin (Kappler 1904a). Congress, the U.S. Supreme Court, and U.S. District Courts have all upheld this recognition several times since the treaty's passage (*United States v. 4,450.72 Acres of Land* 1939; *Lac Court Oreilles Band of Lake Superior Chippewa Indians v. Voigt* 1983; *Minnesota v. Mille Lacs Band of Chippewa Indians* 1999; Environment, Energy, and Natural Resources Finance Act, S.F. No. 2096, 2007; Vennum 1988).

The treaties established between the United States and American Indian peoples have been understood as recognition of the inherent political autonomy of Native nations (Deloria and Lytle 1984; Deloria and Wilkins 1999; Silvern 1999; Wilkins and Lomawaima 2001). Treaties often include clauses that preserve the ability of Native peoples to hunt, fish, and gather in the manner and on the lands to which they are accustomed. Hence, treaties have frequently recognized the importance of control over access to food resources, or food sovereignty, as a critical component of political sovereignty. Food sovereignty has been defined as the right of all people to access healthy and culturally appropriate foods produced through sustainable methods, with a focus on local decision-making and local consumption and production cycles (Altieri 2009; La Via Campesina n.d.). Essentially, food sovereignty is the right of a cultural group to define its own food system.

Whyte (2015a) expands this concept of food sovereignty with his notion of food justice, which requires not only that all persons have access to “safe, healthy, and culturally-appropriate foods” (p. 1) but also that the value of food contributes to a group’s collective self-determination, or their ability to “provide the cultural, social, economic, and political relations needed for its members to pursue good lives…free from external compulsion or interference from other human groups” (p. 5). In other words, food justice places focus not just on access to the food itself but also on the set of associated relationships and the meanings that people build around them. While

most Indigenous people today strive to attain food sovereignty, Indigenous foodways historically were not expressly focused on the right to attain food or control a production system. Rather, these food systems have primarily been about maintaining culturally, ecologically, and spiritually appropriate relationships with the plants and animals that provide food. Such a food system emphasizes reciprocal relationships with the entities on the landscape rather than asserting rights over particular resources as a means of controlling production and access. Therefore, we subsume Whyte's notion of food justice in our definition of Indigenous food sovereignty on the premise that the relationships that Native peoples have developed over centuries of living within a particular landscape are vital to their ability to access food in ways that are culturally meaningful.

The same holds true for Ojibwe food systems. In order to continue to hunt, gather, fish, and harvest wild rice productively, the Ojibwe people developed a culturally meaningful system of management for their entire landscape that was aimed at keeping plant and animal populations healthy. Norrgard (2014, p. 5) argues that reciprocal relations between animal, plant, and human worlds formed the basis of an "intricate system of social and environmental beliefs" that were central to the concept of a "good life" for the Ojibwe people. Understanding the complexity of the interactions between the people, animals, and plants that share the land, Ojibwe people have fostered their relationship with wild rice in a way that emphasizes respectful management of the landscape that supports its productivity. By acknowledging Ojibwe rights to hunt, gather, fish, and harvest rice using traditional techniques in their acknowledged territory, the treaties that Euro-Americans signed with Ojibwe bands actually recognized that this management relationship developed in relation to an entire landscape, not just the Ojibwe's right to access specific resources, such as wild rice.

While wild rice is critical to Ojibwe lifeways, the plant has assumed significance for non-Ojibwe people as well. Since 1950, researchers at the University of Minnesota have been developing domesticated wild rice varieties from germplasm obtained from natural stands (Hayes et al. 1989). The objectives of the university's breeding program are to increase productivity and profitability for Minnesota wild rice farmers and to boost Minnesota's competitiveness with the California wild rice industry (Anders et al. 2004). To date, the University of Minnesota has bred and licensed numerous cultivars that have enabled mechanized harvesting and substantially increased domesticated wild rice production (Hayes et al. 1989;

Minnesota Agricultural Experiment Station 2001, 2008, 2012). In addition, California-based Nor-Cal, Inc. obtained a patent in 1999 for a breeding process that improves the productivity of field-grown wild rice (Foster and Zhu 1999). Then in 2000, University of Minnesota researchers mapped the wild rice genome, effectively clearing the way for genetic modification. Ojibwe people perceive wild rice research and commercialization as exploitation of a resource that the U.S. government and legal system have recognized as vital to Ojibwe food sovereignty and cultural identity (LaDuke 2007). Neither Nor-Cal, Inc. nor the University of Minnesota have consulted the Ojibwe during their respective patenting, breeding, and genetic mapping efforts, nor have they compensated the Ojibwe nation for using wild rice germplasm from lakebeds that Ojibwe people have carefully managed for centuries. Moreover, neither entity has given much consideration to the implications their efforts might have on Ojibwe communities. One factor underlying Ojibwe concerns is the fear that domesticated and genetically engineered varieties will cross with their wild counterparts and alter the essence of a plant that holds immeasurable value within their culture. This fear is not unfounded; biologists recognize cross-contamination as a distinct possibility (LaDuke 2001, 2007; Anders et al. 2004; Minnesota Department of Natural Resources 2008). Additionally, Ojibwe communities that harvest the contaminated varieties, even unknowingly, could be accused of infringing on plant patents and licenses and held monetarily liable (Streiffer 2005). Should cross-contamination between genetically engineered and wild varieties of wild rice occur, the entire set of relationships between the Ojibwe, wild rice, and the wild rice ecosystem would be irreparably severed.

Maintaining these relationships, however, is inherent to the Ojibwe's food sovereignty. To continue them, Ojibwe people certainly need to be able to access wild rice, but they also need to be able to manage the ecosystem that supports wild rice productivity, without the threat of damage to wild rice ecology or of genetic manipulation. It is important to recognize that Ojibwe concerns are not focused on control over the plant itself or on a specific genetic quality of the plant that is implicit in patenting life. The Ojibwe have "bred" wild rice for generations through selective harvesting aimed at improving its productivity. At the same time, they recognize that even through genetic manipulation, human beings cannot control a plant's interaction with the environment, which will change the plant as well. Rather than attempting to control the plant, the Ojibwe have traditionally maintained a reciprocal relationship with it. Their spiritual and

physical care of the plant and its ecosystem support wild rice and, in turn, wild rice sustains the people. It is this relationship that forms the heart of Ojibwe food sovereignty.

This paper poses the question of how and to what extent wild rice research and genetic engineering threaten the web of relationships the Ojibwe people have created as a means of managing their landscape. These relationships have been the basis both for Ojibwe assertions of autonomy within this landscape and for assertions of their political sovereignty. Importantly, the United States recognized the value of these relationships to Ojibwe autonomy in the 1837 White Pine Treaty. In what follows, we demonstrate that, by threatening Ojibwe food sovereignty, wild rice research and genetic engineering by extension threaten Ojibwe political sovereignty. Moreover, we argue that this research, as it has been conducted, is a violation of the White Pine Treaty agreement because it undermines the traditional relationships the Ojibwe people maintain with their known landscape, which are protected by this treaty.

Following Desmarais and Wittman (2014, p. 1153), our argument calls for "re-thinking traditional and legal conceptions of sovereignty" that are assumed to emerge from treaties, namely "the ability of a territorially bounded entity to exercise power through domination." In the case of Ojibwe wild rice and food sovereignty, we propose a "new politics of possibility" (p. 1154) by acknowledging a broader set of rights that extends beyond access to and control of wild rice as a food item, a set of rights that also encompasses the management of the wild rice landscape. Our acknowledgment mirrors Ojibwe perceptions of wild rice as a resource that for centuries has facilitated an entire web of ecological, social, political, and economic relationships between Ojibwe peoples and the plants and animals that comprise the wild rice ecosystem. In other words, our "new politics of possibility" requires thinking about food sovereignty as a critical component of identity, embodied by culturally articulated relationships with an entire landscape, including animals, plants, and elements of the land, such as bodies of water.

We begin by describing the ecology and ecosystem of wild rice. Next, we address the importance of wild rice to Ojibwe culture and identity and follow with a discussion of the significance of the White Pine Treaty as recognition of Ojibwe food sovereignty. We then present our case that wild rice domestication, genome mapping, and patenting violate the White Pine Treaty and, therefore, Ojibwe food sovereignty. In closing, we propose a series of considerations that are aimed at preventing the further exploitation of wild rice, both as a food

resource and also as the basis of the web of relationships that effectively define what it means to be Ojibwe.

The wild rice plant and ecosystem

Zizania palustris is one of four species of wild rice, which is the only grain native to North America (Oelke 1993; Vennum 1988). Also referred to as Indian oats, water oats, wild oats, marsh rye, marsh rice, and Indian rice, *Z. palustris* is a grass that is endemic to the Great Lakes region (Stickney 1896; Taube 1951). It grows best in the muddy bottoms of shallow, gently flowing rivers and lakes, in water one to three feet deep (Stickney 1896; Jenks 1901; Moyle 1944). Wild rice seeds begin to germinate in the spring. Between May and early June, the plant shoot emerges from below the water and starts to develop its fruit head (Jenks 1901; Meeker 1993). From July through early August, flower development occurs. Because male and female flowers on the same plant develop asynchronously, flowers on one plant are typically fertilized by wind-borne pollen from neighboring plants (Elliott 1980; Minnesota Department of Natural Resources 2008). By early August, wild rice plants in shallower waters have developed a soft, "chewable" seed that serves as a food source for resident birds (Meeker 1993, p. 92). As the fruit head continues to ripen, it turns from yellow to a "delicate purple" (Taube 1951, p. 372). The plant reaches full maturity in September, at which time it is ready for harvest. If left unharvested, wild rice kernels dislodge or "shatter" from the plant as they ripen and sink to the bottom of the water. The staggered maturation and shattering process are important for providing reproductive material for the following year, thereby perpetuating the rice stand (Minnesota Department of Natural Resources 2008). A small percentage of the seed can remain dormant anywhere from five years to several decades, allowing wild rice populations to survive temporarily unsuitable conditions and environmental disturbance (Meeker 1993; Minnesota Department of Natural Resources 2008).

Wild rice plants are both highly sensitive and highly adaptive to their environment. If water levels are too deep, germinated seedlings will fail to receive sufficient sunlight, which is needed to spur their growth. Yet water that is too shallow will prevent the plant from developing a strong stem. Once the plant has emerged from below the surface of the water, changes in water

level and flow can uproot the plant or cause the stem to bend, which in turn reduces productivity (Hoover 2015a). Conversely, wild rice plants are adaptive to local water levels, water and soil composition, and light conditions. This results in significant variability in the quality, size, and yield of rice kernels from one stand to the next (Vennum 1988). Cross-pollination between plants also produces a high degree of genetic variability in natural stands. This variation allows the rice to adapt to fluctuating weather patterns and to withstand pest pressures (Mooney 1979; Minnesota Department of Natural Resources 2008).

From an ecosystem perspective, wild rice beds provide important feeding, brooding, and resting grounds for migratory birds, such as ducks, common loons, and trumpeter swans, and beneficial habitat for resident waterfowl (Stickney 1896; Drewes 1993; Minnesota Department of Natural Resources 2008). Wild rice plants also serve as an important food source for herbivorous mammals such as moose, white-tailed deer, beaver, and muskrats, as well as rice worms and other invertebrate species that support a variety of birds, small fish, and amphibious wetland species (Minnesota Department of Natural Resources 2008). Other types of aquatic vegetation are frequently associated with lakebed wild rice, including bulrush, cattails, broadleaf arrowhead, pondweed, and various sedge and water lily species, some of which provide additional food sources and habitat for waterfowl and other aquatic organisms (Moyle 1944; Meeker 1993; Minnesota Department of Natural Resources 2008).

Ojibwe people historically managed human, plant, and animal relationships within the wild rice ecosystem, but Euro-American settlement and the subsequent changes to the landscape have compromised those relationships. Fluctuating water levels and changes in water flow resulting from dam construction and channelization; pollution from oil and gas pipelines, mining, timber, and other industrial activities; recreational water use; shoreline development; invasive species; paddy rice cultivation; climate change; and loss of genetic diversity are all consequences of Euro-American settlement that currently threaten the health and productivity of natural wild rice habitat (Drewes and Silbernagel 2004; Minnesota Department of Natural Resources 2008; Hoover 2015b; Whyte 2015a). Moreover, these changes to the landscape jeopardize the "collective capacities" of the Ojibwe food system. Whyte (2015b, p. 147) defines collective capacities as "an ecological system of interacting humans, nonhuman beings (animals, plants, etc.) and entities (spiritual, inanimate, etc.), and landscapes…that are conceptualized and operate purposefully to facilitate a collective's (such as an Indigenous people's) adaptation to metascale

forces," which he further defines as "disruptions and perturbations to systems that require those systems to adapt and adjust." Implicit in the notion of collective capacities is a group's ability to exercise self-determination when adapting to metascale forces (Whyte 2015b, p. 148). In the context of wild rice, Euro-Americans have effectively disrupted the Ojibwe's traditional ecological relationships, adaptive capacities, and self-determination by imposing their own ecologies – which are rooted in industrial activities such as deforestation, fossil fuel and mineral extraction, commodity agriculture, and urbanization – on the wild rice landscape (Whyte 2015b). Yet the relationship between Ojibwe people and wild rice is so vital that in spite of these threats, Ojibwe communities are fighting to preserve their traditional management of wild rice ecosystems today.

The Ojibwe and the gift of *manoomin*

Wild rice has been a sacred resource for the Ojibwe peoples of North America for over two centuries (Vennum 1988; Moodie 1991). Translated from the Ojibwe language, *manoomin* means "good berry," or "the good seed that grows in water" (Jenks 1901, p. 1024; Child 2014, p. 161). According to oral tradition, the Ojibwe people were instructed to "follow the shell that appeared in the sky," from the waters of the East to "the place where food grows on the water" (LaDuke 2008, p. 206). This food, which the Ojibwe believe was a gift from culture hero Wenabozhoo, was *manoomin*, or wild rice (Vennum 1988). Wild rice pulled Ojibwe peoples from their first homeland in the east towards the lakes further west, bringing them to their current homeland. Because this plant appeared in prophecy as a marker that the Ojibwe had arrived in a landscape meant for them, wild rice has profound historical, spiritual, and cultural importance, as well as economic and nutritional value, for the Ojibwe people.

The Ojibwe believed that wild rice was created for them, which instilled a strong moral obligation to manage and protect wild rice stands (Walker and Doerfler 2009). Many Ojibwe peoples located their villages near wild rice beds for ease of access and aptly referred to them as "wild-rice villages" (Jenks 1901, p. 1042). Tribal elders monitored and managed water levels to ensure that sunlight could penetrate through to the lakebed and also weeded out competitor plants, thereby fostering the growth of immature rice (Walker and Doerfler 2009; Hoover

2015a). Tribal members also trapped wild rice-eating animals, such as muskrats, and enticed the predators of blackbirds, which were fond of the grass, to the rice beds in order to preserve the harvest (Moodie 1991). It is important to note that the Ojibwe trapped wild rice predators not to eliminate them but rather to manage their populations so that the rice plants could flourish. These activities reflect the Ojibwe people's awareness that human beings were just one of several participants in a cooperative network that extended to the wider ecosystem. Keeping the rice beds productive every year required delicate management of human, plant, and animal relationships in order to promote a healthy ecosystem that was ultimately positive for all.

Evidence suggests that some Ojibwe bands sowed wild rice intentionally to encourage new plant growth. Methods of sowing included wrapping rice grains in clay and dropping them into the water or scattering freshly harvested kernels across the open water (Moodie 1991). There is also evidence that the Ojibwe expanded the geographical range of wild rice by sowing new stands in areas where rice was previously absent. For example, Moodie (1991) has suggested that although the Ojibwe began to settle along the southern shore of Lake Superior in the late 17th century, they did not harvest wild rice in that region until the 19th century. Moodie posits that, as they moved north, Ojibwe migrants carried rice grains obtained from inland and sowed them along the shoreline when they arrived. He notes that by 1855, wild rice was "very prevalent" along southern Lake Superior (p. 76).

The most elaborate Ojibwe custom surrounding *manoomin* was the harvest. During *Manoominike Giizis,* or the Wild Rice Moon, Ojibwe villages temporarily disbanded and migrated to the rice beds where they set up smaller camps that emphasized a cooperative social network, fostered communal bonding, and encouraged a shared sense of identity (Taube 1951; Vennum 1988; Walker and Doerfler 2009). A single rice camp usually consisted of two to five extended families. Large lakes with an abundance of rice beds could accommodate several camps comprised of fifteen to twenty families each (Norrgard 2014). Because the process of gathering, processing, and preserving the rice was labor intensive, it required cooperation from all individuals, old and young alike. The communal spirit associated with *manoominikewin*, or "making rice," extended into all of the activities the Ojibwe people engaged in at the rice camps. When they were not in the rice beds, the families danced, played games, told stories, exchanged news, shared jokes, and educated younger Ojibwe in wild rice harvesting and processing techniques (Vennum 1988; Whyte 2015a). These activities deepened the sense of community at

the rice camps and reinforced what it meant to be Ojibwe. Although the traditional rice camps have declined over the past several decades, largely as a result of wild rice commoditization, the spirit of the harvest persists (Vennum 1988). The *Manoominike Giizis* continues to be a community and cultural event that "ties the community intergenerationally to all that is essentially…Ojibwe" (LaDuke 2007). For the Ojibwe people, ricing has not only created reciprocal relationships between humans and the landscape, it has strengthened these kinds of bonds between people as well.

The wild rice harvest was traditionally led by women. In late August or early September, the women went out to the rice beds to tie the plant stalks into bundles. The stalks were generally twisted, bent over to form a u-shape, and tied with strips of bark or basswood fiber (Jenks 1901; Vennum 1988; Densmore 2012). This helped both to prevent shattering and to protect the grains from being eaten by birds (Taube 1951). Binding the rice also served to identify which area of the rice bed each family would harvest (Densmore 1979; Child 2014). Stickney (1896, p. 117) notes that "each woman knew her own [stalks] by some peculiarity of the twist, and the rights of this ownership were respected." In other words, ownership rights to the harvest were upheld by customary law, which everyone in the community respected (Jenks 1901).

At the same time, cooperative management practices indicate that the rice beds were communal property, even if the grain itself was not. Ojibwe women and their families essentially had usufruct rights to wild rice, or the right to harvest and keep the rice that they tied off for personal consumption or trade. Yet, while they often returned to the same stand year after year, individual Ojibwe did not "own" their stand in the Euro-American sense of the term. The wild rice beds themselves were inalienable, and, as a result, the user was expected to respectfully care for the stand she harvested in order to maintain a healthy rice ecosystem for all. Further demonstrating the Ojibwe's perception of collective ownership, rice stands were distributed in a way that ensured that all families had access to good harvesting. For example, families with more plentiful stands often invited less fortunate families to share their harvest (Vennum 1988).

In addition, each Ojibwe band traditionally elected rice chiefs who attended to the many social and ecological concerns related to maintaining a smooth and consistent harvest. Rice chiefs and their committees monitored the ecological conditions of the rice beds, determined the locations from which families could harvest, and watched for signs of poaching (Whyte 2015a). Harvesters not only waited until the rice chiefs decided the time was right to collect wild rice,

they also harvested at a pace and succession determined by the rice chiefs in order to prevent waste (Vennum 1988). This indicates that harvesters respected the decisions of those most knowledgeable about rice management and that ricing took place as a community. Because it was a gift to the Ojibwe people, every user was responsible for maintaining wild rice not only for the entire community but also for future descendants.

Wild rice was harvested using a technique called "knocking." When the rice was ready, Ojibwe women returned to the stands in pairs, with one woman steering the canoe using a long, forked pole that provided traction in the muddy lake bottom (Vennum 1988). The second woman (the ricer) would bend the tied rice bunches over the side of the canoe, loosen the bark or twine, and tap the stalk lightly with a *bawa*, or "knocker," until the grain dislodged and fell into the canoe (Jenks 1901; Anders et al. 2004). To collect rice that had not been bundled, the ricer used one knocker to draw the stalks toward her and another knocker to tap the ripe rice kernels into the boat. This process was repeated until the boat was full of grain. According to Densmore (2012, p. 44), knocking the ripe kernels free without disturbing the less mature ones was thought to be a "test of a good rice gatherer," as it allowed the ricers to return to the same location at a later time to gather any newly ripened grains. Moyle (1944) observed that hand harvesting wild rice supported the wild rice ecosystem because it left most of the grain for resident waterfowl to feed on and for reseeding to ensure the growth of new plants in subsequent seasons. Careful harvesting ensured that rice stands would continue to produce and that those non-human entities that depended on the plant had enough for their needs as well. As demonstrated in their harvesting techniques, proper management of wild rice for Ojibwe peoples required respect for an entire web of interrelated relationships.

Newly harvested wild rice was brought back to the camp for drying, either by the sun or over a smoldering fire (Jenks 1901; Vennum 1988). Sun-dried grains were parched, usually in a hot kettle, to destroy the germ, loosen the husk, and impart flavor (Densmore 2012). After drying, the rice was hulled to separate the chaff from the kernel. The grains were placed in a wooden barrel with sloping sides, and the huller used either a blunt-ended or pointed wooden pestle to disturb the husk without destroying the kernel (Densmore 2012). Another common method for hulling was to tread, or “dance,” the rice in a small, earthen pit (Vennum 1988, p. 190). Treading was typically done by Ojibwe men. Holding himself up with two poles stuck in the ground adjacent to the pit, the treader massaged his feet through the grain to dislodge the

husk (Densmore 2012). The husked rice was then winnowed using either a birch-bark fan or a *nooshkaachinaagan*, a birch-bark tray that was used to toss the kernels into the air and allow the wind to separate the chaff from the grain (Stickney 1896; Vennum 1988). After winnowing, the rice was ready for eating or for storage. Uneaten grains were traditionally stored underground in animal skin or bark containers or in woven cedar bags (Taube 1951; Densmore 1979; Vennum 1988). Properly cured and stored rice could last for several years (Stickney 1896).

The Ojibwe prepared wild rice in several ways. Most simply, it was boiled with hot water or the broth of meat or fish and eaten plain or with maple sugar (Vennum 1988; Densmore 2012). Wild rice was also boiled together with corn and fish and served with maple sugar and cranberries; prepared into a stew with venison, fish, or waterfowl; or mixed alone with meat or buffalo fat (Stickney 1896; Taube 1951). Wild rice parched in grease and seasoned with maple sugar was mixed with blueberries and reserved as a foodstuff for long journeys (Densmore 2012). With high levels of protein, carbohydrates, potassium, and phosphorus and low levels of fat, wild rice was more nutritious than any other naturally available food (Anderson 1976; Vennum 1988). It was also an excellent source of the B-vitamins niacin, riboflavin, and thiamine (Oelke 1993).

Although wild rice was an important food staple for the Ojibwe, Child (2014) argues that the Ojibwe's economic relationship with wild rice was not limited to subsistence. Wild rice also served as an important source of trade with European settlers. With limited knowledge of the food resources available in a territory newly accessible to them, Europeans frequently exchanged tools, firearms, blankets, clothing, and other items for Ojibwe wild rice. In fact, Vennum (1988) suggests that Ojibwe peoples moved westward from the east end of Lake Superior into wild rice habitat in northern Wisconsin and Minnesota specifically to facilitate trade with the Europeans. Thus, wild rice was a coveted and indispensable item, and the fur trade likely would not have flourished without it (Taube 1951). By the early eighteenth century, wild rice also provided an important source of credit and cash for Ojibwe people (Vennum 1988; LaDuke 2007, 2011). Even today, some Ojibwe families continue to rely on the sale of wild rice to cover household expenses (LaDuke 2011).

In addition to serving as a staple food and trade item, the Ojibwe use wild rice ceremonially and reinforce its sacred attributes through stories and legend. Norrgard (2014, p. 25) asserts that a vital component of harvesting and processing wild rice is the "renewal of ties to

the land and the spirits of the plants themselves." Historically, before the wild rice harvest commenced in September, the Ojibwe offered prayers and gifts of tobacco to the *manidoog*, or spirits, as a way to show respect and sustain positive relationships with the natural world (Vennum 1988; Walker and Doerfler 2009; Norrgard 2014). Prior to eating any of the newly harvested grain, the Ojibwe held a thanksgiving feast, during which they offered prayers to the Creator in honor of the wild rice plant (Jenks 1901; Child 2014). The Ojibwe believed this expression of their gratitude would please the spirits and ensure bountiful harvests in future years (Vennum 1988). Moreover, because *manoomin* was a gift from the Creator, some Ojibwe believed that sowing wild rice seeds would "curse the lake, and the rice would never grow in it again" (Vennum 1988, p. 68). Allowing the rice to grow naturally demonstrated reverence for the spirits and safeguarded the Ojibwe's primary food source. Collectively, these religious components of the wild rice harvest demonstrate that the reciprocal relationship the Ojibwe people maintained with the plant was both ecological and spiritual.

The Ojibwe's regard for wild rice as a sacred plant was – and continues to be – reflected in their life cycle observances and daily practices as well. Naming feasts for infants and children, and other important events that occur in life, death, and beyond, always incorporate wild rice in some way (Child 2014). LaDuke (2011) notes that *mazaan*, or broken wild rice, is the first food that babies receive, while elders consume wild rice as one of their last foods before they cross over into the Spirit world. Vennum (1988) describes numerous taboos and proscriptions related to wild rice: Girls are allowed to consume only wild rice during their puberty rights but must refrain from harvesting the rice while menstruating. Wild rice must be avoided universally during mourning periods but should serve as the primary feasting food during memorial ceremonies. Pregnant women who eat popped rice may find that their babies have difficulty breathing. The Ojibwe also used *manoomin* medicinally by mixing its juices with herbs to make a poultice or by boiling it with broth to serve as a milk substitute for infants (Vennum 1988).

Considering the cornerstone that it was to their traditional diets and cultural and economic activities, wild rice was undoubtedly an invaluable resource for the Ojibwe. Wild rice facilitated important ecological, social, political, and economic relationships – both between Ojibwe peoples and with the plants and animals that comprised the wild rice ecosystem – and came to form the core of Ojibwe collective identity. Next to sacred lands and hunting grounds, Stickney (1896, p. 116) observed that the Ojibwe understandably regarded rice beds as "the most

valuable property," which they "vigorously defended." For this reason, when the U.S. government began to procure Ojibwe territory in the mid-1800s, the tribe negotiated to retain access to lakes with expansive wild rice beds, both on their reservations and in ceded territory (Taube 1951; Vennum 1988).

Recognizing Ojibwe food sovereignty: the White Pine Treaty of 1837

The White Pine Treaty of 1837, or the Treaty of 1837 as the signatory tribes commonly refer to it, was the first official transfer of Ojibwe territory to the United States government. Though they ceded nearly fourteen million acres of land in the territory that later became Wisconsin and Minnesota, Ojibwe headmen negotiated to retain what the treaty describes as "the privilege of hunting, fishing, and gathering the wild rice, upon the lands, the rivers and the lakes included in the territory ceded" (Kappler 1904a, Article 5). In spite of the changes that were occurring in land tenure at this time, Ojibwe leaders recognized that access to their homelands and traditional resources was critical not only to their survival as a people but also to their political autonomy; thus, treaty rights that protected the Ojibwe's traditional livelihoods were essential for helping them to navigate these changes (Norrgard 2014).

Although the White Pine Treaty did not grant the Ojibwe exclusive ownership of native wild rice stands in the ceded territory, it did preserve their right to manage and harvest these stands (Walker and Doerfler 2009). What is more, Norrgard (2014) notes that while American officials often interpreted treaties as permanent cessions of land and power, Ojibwe leaders interpreted them as agreements in which they granted U.S. citizens permission to utilize resources on their lands. Marten, head leader of the La Court Oreilles Band of Ojibwe, articulated this understanding when signing the White Pine Treaty: "We have no objections to the white man's working the mines, and the timber and making farms, but we reserve the birch bark and cedar for canoes, the rice and sugar tree and the privilege of hunting without being disturbed by the whites" (Norrgard 2014, p. 21). Marten made it clear that gathering was a critical component of Ojibwe survival and, by reserving this right in the treaty, he designated it as a right to a specific form of livelihood. In 1842, the Copper Treaty reinforced the Ojibwe's right to hunt on the ceded territory and engage in "the other usual privileges of occupancy"

(Kappler 1904b, Article 2). When understood as an extension of the previous treaty, "the other usual privileges of occupancy" certainly included wild rice harvesting. Ensuring utilization of the landscape for subsistence without the disturbance of Euro-Americans implies Ojibwe management of these resources as well.

Still, the Ojibwe people already had an autonomous relationship with wild rice prior to the treaty. We propose that the U.S. government's recognition of wild rice in the White Pine Treaty, and the subsequent affirmation in the Copper Treaty, was a purposeful recognition of this autonomous relationship, translated into the European language of sovereignty. While sovereignty implies control over a resource and the ability to manipulate or even destroy it, and also considering that the communal ownership and reciprocal management of wild rice does not allow complete control over the plant or its ecosystem by the Ojibwe people, treaty recognition of sovereignty does not negate the Ojibwe relationship with wild rice. Instead, by recognizing Ojibwe food sovereignty, the White Pine Treaty implies that the United States acknowledged the Ojibwe people's right to continue their traditional relationship of reciprocal management with wild rice and the supporting ecosystem. Furthermore, we interpret the White Pine Treaty as the U.S. government's recognition of its duty to protect the Ojibwe's ability to manage and maintain their relationship to this critical resource, which is a fundamental component of their food sovereignty.

We also recognize, however, that the very purpose of U.S treaties with Native peoples was often to permit Euro-American settlement in Native territory, thereby ushering in new and competing claims to dominance over the landscape. Following Whyte's (2015b, p. 144) notion of settler-industrial campaigns, which he describes as "waves of settlers" who seek to "establish permanent roots in Indigenous territories with the hopes of inscribing homelands for themselves in those territories," the very objective of the Euro-American signatories to the White Pine Treaty was to exploit the resources available to them on newly acquired land in order to facilitate the development of an alternative economy. This intervention, however, inherently compromised the traditional relationships between Indigenous people and the landscape because the political and economic circumstances that allowed Euro-Americans to be settlers inevitably demanded an industrial relationship with land and resources (Whyte 2015b).

Euro-American attempts to dominate the wild rice landscape are evident in the fact that, as U.S. governance became more formalized across the Minnesota territory, state and federal

officials began to perceive treaty rights as standing in the way of government control over the natural resources within their jurisdiction (Norrgard 2014). In his 1850 Executive Order, President Taylor ordered the Ojibwe's removal from ceded lands and abolished the rights granted to them in the 1837 and 1842 treaties (*Lac Courte Oreilles Band of Lake Superior Chippewa Indians v. Voigt* 1983; *Minnesota v. Mille Lacs Band of Chippewa Indians* 1999; Satz 1991). The U.S. ultimately abandoned this removal policy, however, and the Treaty of 1854 that followed not only established additional hunting and fishing rights in newly ceded territory but also reinforced food provisioning rights that were secured by former treaties (Kappler 1904c). Only four years later, however, after it achieved statehood in 1858, the State of Minnesota sought to undermine Ojibwe food sovereignty by attempting to criminalize the people's food rights on ceded lands, either through official state policy or through erroneous interpretations of treaty language (*Lac Courte Oreilles Band of Lake Superior Chippewa Indians v. Voigt* 1983; Norrgard 2014).

Despite the efforts to overturn Ojibwe treaty rights, the U.S. Congress, Supreme Court, and District Courts have consistently upheld the Ojibwe's food rights over the past century. In 1926, in response to the Ojibwe's concerns that reservation lands were not sufficient to meet their subsistence needs, Congress passed Public Law No. 418, which created the Wild Rice Lake Indian Reserve for the "exclusive use and benefit" of the Ojibwe Indians in Minnesota (Vennum 1988, p. 262). When the state of Minnesota attempted to acquire the reserve for a public hunting and fishing ground in 1934, Congress passed Public Law No. 217 to both reaffirm the 1926 legislation and to authorize the establishment of three additional wild rice reserves "situated convenient to [Ojibwe] Indian communities or settlements, including all lands which…are necessary to the proper establishment and maintenance of said reserves and the control of the water levels of the lakes" (*United States v. 4,450.72 Acres of Land* 1939; Vennum 1988, p. 263). A U.S. District Court of Minnesota upheld this legislation in 1939, ruling that "Congress must have assumed that the procuring of this wild rice bed would aid and assist the Indians in obtaining that which to them is a very important source of livelihood" (*United States v. 4,450.72 Acres of Land* 1939). By including lands that impact water levels beyond the rice beds themselves, these rulings uphold not only the Ojibwe's usufruct rights to wild rice but also the right of Ojibwe peoples to manage the landscape that supports the plant.

In *Lac Courte Oreilles Band of Lake Superior Chippewa Indians v. Voigt* (1983), the defendants, who consisted primarily of Wisconsin state officials, argued that the Removal Order of 1850 and the Treaty of 1854, which established reservations on unceded territory, abolished the usufruct rights that were granted to the Ojibwe in the 1837 and 1842 treaties. Borrowing the U.S. Supreme Court's logic from the *Worcester v. Georgia* ruling in 1832, the Seventh Circuit Court of Appeals held that treaties "must be construed as the Indians understood them," which, Norrgard (2014, p. 13) asserts, was as agreements to share resources on their homelands, not as permanent cessions of land and power. Though *Lac Courte Oreilles v. Voigt* dealt with the Ojibwe's usufruct rights on public lands in Wisconsin, the implications for preserving food sovereignty extended to Ojibwe bands in Minnesota as well.

A similar argument was made in *Minnesota v. Mille Lacs Band of Chippewa Indians* (1999), where the state of Minnesota claimed that the 1850 removal order; the 1855 treaty, which transferred additional Ojibwe territory to the United States; and Minnesota's statehood in 1858 eliminated the Ojibwe's 1837 treaty rights. The U.S. Supreme Court disagreed, arguing that the 1850 Removal Order was unlawful because President Taylor issued the order without authority; that the 1855 treaty never mentioned usufruct rights and therefore could not have abolished them; and that reserved treaty rights are not terminated by implication at statehood. Moreover, the Court maintained that treaties must be "interpreted liberally in favor of the Indians" (*Minnesota v. Mille Lacs Band of Chippewa Indians* 1999, p. 26). As such, because the Ojibwe did not understand the 1855 treaty to eliminate their usufruct rights on ceded lands, the Supreme Court held that the Ojibwe never relinquished those rights.

While these court cases were concerned with usufruct rights and not food sovereignty directly, in that they dealt with the Ojibwe's access to food resources identified in the treaties, it is important to recognize that usufruct rights express only one part of the relationship Ojibwe people established with wild rice. For Ojibwe people, usufruct rights are inseparable from the broader relationships that encompass traditional management practices, and the Ojibwe signatories to the treaties most certainly interpreted the preservation of their rights to hunt, fish, and gather wild rice as extending to ecosystem management as well. In other words, the Ojibwe likely understood that the treaties allowed them to carry out their normal harvesting *and* management activities on ceded lands, both of which maintained their ability to assert their usufruct rights, and therefore both were central to their food sovereignty. Thus, while the treaties

were about usufruct rights in the legal sense, the Ojibwe would have interpreted them more broadly to include ecosystem management. Moreover, because the courts have ruled that these treaties should be interpreted from the Ojibwe perspective (*Worcester v. Georgia* 1832; *Lac Courte Oreilles Band of Lake Superior Chippewa Indians v. Voigt* 1983; *Minnesota v. Mille Lacs Band of Chippewa Indians* 1999), they have also upheld the wider ecological relationships that were central to Ojibwe autonomy and that U.S. treaties recognized as sovereignty. We argue, therefore, that the U.S. government and federal and state courts' consistent interpretation of the White Pine Treaty underscores their recognition of Ojibwe food sovereignty, particularly with respect to wild rice.

Undermining Ojibwe food sovereignty: wild rice domestication, genome mapping, and patents

Efforts to domesticate, genetically map, and patent wild rice over the past sixty-five years, however, have undermined the provisions of the White Pine Treaty by compromising the Ojibwe's relationship with this critical cultural resource. As with many wild food species that are important to Indigenous communities, it was only a matter of time before the potential value of wild rice to non-Indigenous people was recognized. Early European explorers attempted to grow wild rice in their homelands from seed collected in North America, but these efforts ultimately failed (Oelke 1993). In 1917, Canadians began harvesting wild rice mechanically, to the consternation of the Canadian Ojibwe, who feared that the ensuing competition from non-natives would compromise their incomes as well as the cultural and social aspects of their sacred crop (Vennum 1988). In the U.S., attempts to modernize wild rice production began in the 1920s. Charles E. Chambliss from the United States Department of Agriculture recognized that wild rice production could improve only if traditional techniques were abandoned and more non-Indian participants became involved (Child 2014). This attitude provided the impetus for what would later be recognized as "the largest modern effort to domesticate a cereal grain" (Hayes et al. 1989, p. 203). At the onset of the Great Depression a decade later, emergency conservation crew managers, at the behest of the federal government, worked their way into Ojibwe wild rice camps, promoting new harvesting methods and alternative labor organization that emphasized

male participation in activities that were once managed by Ojibwe women, particularly wild rice harvesting (Child 2014). The efforts to modernize wild rice production and to relegate Ojibwe women to more domestic roles transformed the gender dynamics of the wild rice economy in significant ways (Child 2014). For example, Drewes (1993) found that in 2005 and 2006, women comprised only 16% and 19%, respectively, of all wild rice harvesters in Wisconsin and Minnesota.

Even these early interventions into Ojibwe wild rice management damaged the ecological relationship the Ojibwe people had so carefully developed over generations. When Chambliss returned to the wild rice beds several years after he initiated this modernization program, he lamented that "[the whites] have been greedy and paid no attention to the natural laws regarding the plants' reproduction. As a result, many of the better wild rice beds have been ruined by whites gathering the crop in an immature state. The practice of the whites has forced the Indians to gather immature rice. This whole entire practice [is] ruining the wild rice in Minnesota" (quoted in Child 2014, p. 181). While the Ojibwe's management of wild rice involved protecting it, from the Ojibwe vantage point Euro-Americans seemed interested only in exploiting the product. Vennum (1988, p. 267) argues that because Euro-Americans were unable to appreciate the deeper significance of *manoomin* to Ojibwe people, "they paid little attention to its ceremonial use, were oblivious to the role of wild rice in legends, regarded the rice camps as mere social diversions interfering with the harvest, and generally considered the lack of concentrated effort to gather every grain possible an indication of Indian indolence or stupidity." Instead of respecting the relationship that Ojibwe people had cultivated with wild rice, Euro-American harvesters ignored centuries of ecological knowledge in favor of techniques they saw as more efficient, effectively causing profound harm.

More specialized wild rice domestication efforts were initiated in 1950, when University of Minnesota researchers sowed a small paddy at Bass Lake, Minnesota, with wild rice seeds gathered from natural stands (Hayes et al. 1989). Wild rice from lake stands was used to seed additional paddies during the early domestication years as well (Anderson 1976). These initial attempts to domesticate rice were largely unsuccessful due to the tendency of wild rice to ripen unevenly and shatter its seeds at maturity, a problem that the Ojibwe addressed by tying the rice several weeks prior to harvest. Nevertheless, domestication efforts changed dramatically when, in 1963, researchers at the University of Minnesota realized that some wild rice plants retained

their seed beyond maturity. Seed collected from these plants paved the way for the University of Minnesota's wild rice breeding program, which, since 1972, has focused on developing strains of wild rice with shatter resistant, disease and pest resistant, and yield-enhancing traits (Hayes et al. 1989; Oelke 1993; Anders et al. 2004). These qualities facilitate mechanical harvesting, improve productivity, and increase profitability for cultivated wild rice growers. To this end, the university's breeding program is also aimed at helping Minnesota's wild rice growers compete with California growers, who surpassed Minnesota in cultivated wild rice production in the mid-1980s (Hayes et al. 1989).

While the University of Minnesota's breeding efforts enabled the state to remain competitive with California, at least initially, the impacts on the Ojibwe wild rice economy were detrimental. In addition to using wild rice as a staple food source, many Ojibwe families once relied on the sale of lake-harvested wild rice to supplement household income (Vennum 1988). By 1968, as a result of the improved cultivars, domesticated wild rice comprised over twenty percent of Minnesota's total wild rice crop (LaDuke 2001). Between 1967 and 1976, productivity increased so much that the wholesale price of wild rice plummeted from $4.44 per pound to $2.68 per pound (LaDuke 2007). Then in 1977, Minnesota declared wild rice the official state grain. This further accelerated the production of domesticated wild rice, which outpaced that from natural stands by the early 1980s. Consequently, wild rice prices dropped even further, and many Ojibwe could no longer compete in the market. By 2001, lake-harvested rice comprised just fifteen percent of Minnesota's total wild rice production (LaDuke 2001), which Drewes and Silbernagel (2004) valued at fifteen to twenty-five million dollars annually.

To exacerbate the problem, California-based Nor-Cal, Inc. obtained a patent in 1999 for a breeding process that enhances the productivity of hybrid wild rice (Foster and Zhu 1999). According to the patent, hybrid wild rice – relative to open-pollinated wild rice – has improved uniformity in plant structure and grain size, which facilitates mechanical harvesting; better pollen flow, which augments yield; and less genetic variability, which adds efficiency to the process of selecting for desired traits. Hybrid varieties also tend to demonstrate hybrid vigor, or superior biological quality and trait expression relative to their parents (Birchler et al. 2010). Hybrid varieties, however, still maintain the capacity to self-pollinate, which compromises both hybrid vigor and yield. One way to preserve the yield differential and vigor of hybrid varieties is to prevent plants from producing pollen, in other words, to make the male parent sterile. Nor-Cal's

breeding process utilizes cytoplasmic-genetic male sterility (CGMS) to breed male sterility into hybrid wild rice. The use of this process in hybrid wild rice production is protected under U.S. patent number 5955648, which grants Nor-Cal intellectual property rights over any wild rice seeds and plants that are developed using CGMS. Incidentally, Nor-Cal's patent does not disclose the origins of the germplasm utilized in its breeding effort, stating instead that "all genetic components" of the CGMS production system have been developed from "proprietary cultivated wild rice populations" (Foster and Zhu 1999). However, given our knowledge of how the University of Minnesota obtained the wild rice used in its own breeding programs (i.e., from natural wild rice stands), and considering that wild rice does not grow naturally in California (Anders et al. 2004), it is highly plausible that the germplasm used to develop CGMS originated from wild rice beds managed by Native peoples.

Finally, in 2000, University of Minnesota researchers mapped the wild rice genome. Plant geneticists argue that mapping the genome has laid an "important foundation for genetic and crop improvement studies" (LaDuke 2007). The Ojibwe, however, are worried that this endeavor has opened the door for genetic engineering of wild rice beyond that already undertaken by Nor-Cal. To this they are adamantly opposed:

> *"The Creator has given us many things. Every time we try to change [what we are given], it messes things up. I'm afraid this will happen to our wild rice beds. To [genetically engineer] wild rice would be disrespectful to the First People who inhabited this land…It would be morally wrong."*
>
> *Chairman Goggleye Jr., Leech Lake Band of Ojibwe*
>
> (quoted in Walker and Doerfler 2009, p. 504)

The prospects for future development of genetically modified wild rice, however, are very real. One of the Ojibwe's greatest worries is that cultivated wild rice – in particular, genetically modified varieties – will cross-pollinate with lakebed wild rice. Considering that cultivated wild rice fields tend to be located in close proximity to native beds, and given that wild rice pollen is easily transported by wind, a contamination event is not out of the question (Stickney 1896; LaDuke 2007). Although University of Minnesota researchers have recommended a 660-foot buffer between cultivated and lakebed wild rice, Cregan (2004, p. 48) found that "small amounts of wild rice pollen can travel and remain viable for at least two miles." Moreover, the Minnesota Department of Natural Resources (2008) reports that waterfowl

may also carry viable pollen between cultivated and native rice stands. If pollen from Nor-Cal's sterile wild rice varieties should happen to fertilize a lake or river wild rice population, there is a chance that the latter could also become sterile. This possibility poses a great risk to the long-term viability of wild populations and has severe cultural and economic implications for the Ojibwe people.

First, contamination would impair the incredible diversity of wild rice. Ojibwe harvesters recognize the difference between plants that grow in deep water and those that have adapted to grow in shallow water. Some strains are long and slim, others short and fat, and they vary in color from purple to brown to green, revealing incredible biodiversity (Moyle 1944; LaDuke 2007).[1] LaDuke (2007) notes that this biodiversity is the "staff of life" and a critical element of the security of the rice. For example, the biodiversity of Ojibwe wild rice contributes to resiliency and survival under pest or disease pressure and during inclement weather, helping to ensure that there will "always be *manoomin* – somewhere, everywhere" (LaDuke 2011; Hoover 2015a). Peter David, a biologist from the Great Lakes Indian Fish and Wildlife Commission, has argued that genetic material from genetically altered wild rice has the potential to "infect" natural stands and cause irreversible damage which, he notes, has happened with corn and other major crops in the past (Anders et al. 2004, p. 18). Furthermore, the Minnesota Department of Natural Resources (2008) acknowledges that maintaining natural genetic diversity is the best strategy for ensuring the survival of plant and animal communities in the Great Lakes region, which includes wild rice, in the face of environmental disturbance resulting from climate change.

Contamination could also introduce legal liabilities for any Ojibwe who tries to sell wild rice that is contaminated with pollen from a patented variety, even if he or she is perfectly unaware that contamination has occurred (Salazar et al. 2007; De Schutter 2009). More broadly, the constant fear of contamination could alter the Ojibwe's ceremonial and cultural uses of *manoomin* because it would change the essence of the native wild rice plant that was given to them through prophecy. A change in how Ojibwes use wild rice would have adverse implications both for preserving their traditional knowledge around wild rice and for maintaining the distinct cultural identity that is embedded in the Ojibwe's relationship with the plant. Fundamentally,

[1] In comparison to its lakebed counterpart, paddy wild rice is consistently hard, black, and long-grained (LaDuke 2011).

contamination of wild rice would violate the Ojibwe's right to "the rice that grew in the waters of [their] people, and all the value that rice holds" (LaDuke 2007). In other words, contamination would undermine their right to food sovereignty.

Additionally, the Ojibwe find it virtually unfathomable that a plant resource that has been so central to their livelihoods and cultural identity can be subject to ownership claims from non-Indigenous peoples (LaDuke 2007). For the Ojibwe, patenting life and the entire set of relationships that support it is unthinkable. First of all, rice beds are communally owned. No one person's usufruct rights could deny others the right to access to wild rice (Vennum 1988). Second, Ojibwe ecological knowledge recognizes that humans cannot control natural systems; they can only manage the relationships between people, plants, and the wider ecosystem, paying close attention to the physical, ecological, and spiritual needs of each entity. It is the reciprocity of these relationships that allows Ojibwe people to maintain their position as managers of the wild rice production system. This is a very different approach from modern scientific and capitalist thought, which treats living beings as commodities that human beings can own and manipulate. This attitude is reflected in the efforts to domesticate, breed, and genetically alter wild rice.

As such, Chairman Goggleye Jr.'s sentiment about genetically engineering wild rice, noted previously, exposes the "divergent understandings of the meaning and identity" of the wild rice plants themselves (Breen 2014, p. 3). For University of Minnesota researchers, wild rice plants are essentially germplasm – little more than storage vessels for genetic information that can be utilized to develop new plant cultivars aimed at improving plant productivity and farmer profitability (Breen 2014). The researchers' attention is directed not at the plant itself or at the ecosystem that sustains it, but rather at how plant genes govern trait expression. In comparison, the Ojibwe have a more holistic perspective. They see the wild rice plant in its entirety and recognize that it is a conscious, self-determining entity (Tinker 2004) that is "embedded within ecological and spiritual webs of kinship" (Breen 2014, p. 3). Ojibwe origin stories and oral tradition reaffirm these relationships and provide guidance as to how wild rice should be treated appropriately. To the extent that their wild rice management practices have been limited to pest control, altering water levels, and sowing new stands, the Ojibwe have for the most part allowed wild rice plants to develop self-determined genetic variability based on their interactions with the environment and with each other. Reducing a wild rice plant to its component parts and

tampering with its germplasm for the sake of reducing genetic variability compromises the essence of wild rice. The Ojibwe perceive this as a violation of their treaty agreements:

> *"We are of the opinion that the wild rice rights assured by treaty accrue not only to individual grains of rice, but to the very essence of the resource."*
>
> *Minnesota Chippewa Tribal President Norman Deschampe*
>
> (quoted in LaDuke 2007)

Additionally, ownership claims over germplasm contradict the Ojibwe's Indigenous value system, which emphasizes communal ownership, resource sharing, respect for the essence of non-human beings, and the ecological and spiritual relationships that connect all living things (Tinker 2004; Argumedo and Pimbert 2006; Salazar et al. 2007; Breen 2014). The implications of ownership claims to wild rice by way of breeding licenses and patents are severe. Mooney (1979) argues that the entities who control seed – or, in this case, germplasm – are positioned to control the entire food system, including the inputs needed and the products sold. In other words, genetic research on wild rice and the associated ownership claims could substantially undermine the Ojibwe's relationship with *manoomin* and ultimately threaten their continued access to and traditional uses of a resource that is central to their food sovereignty and very identity.

The Ojibwe feel, however, that their concerns about wild rice research and genetic modification are not being taken seriously. When asked about the possibility of pollen from cultivated wild rice migrating to lakebed wild rice, for example, University of Minnesota researcher Ron Phillips replied, "It depends on what you are willing to accept as a threshold of risk" (LaDuke 2007). Furthermore, though Phillips claims that the probability of domesticated rice overpowering wild strains through cross-contamination is low, he admits that "it's not the kind of thing you could control perfectly" (LaDuke 2001). The uncertainty surrounding wild rice contamination is underscored by biologist Peter David's assessment that humans have "a very poor track record for predicting the outcomes" of interfering with the processes of evolution (Anders et al. 2004, p. 18), particularly of introducing genetically engineered traits to the natural environment. Considering that contamination would threaten the very integrity of *manoomin*, as previously discussed, the risk for Ojibwe communities is immeasurable.

Moreover, though University of Minnesota researchers claim to recognize the value of wild rice as a "natural resource to be preserved in its natural state, for the benefit of the ecosystem and of those who harvest it for food and cultural reasons" (Anders et al. 2004, p. 39),

their primary focus is on developing wild rice breeds that benefit growers and consumers. These domesticated varieties are cultivated outside of their natural environment in diked paddies, they rely heavily on fungicides and herbicides in order to thrive, and they require mechanical harvesting (Hoover 2015a). Thus, the university's interest in wild rice clearly lies in the economic utility of the resource, not in preserving its cultural significance or "natural state." These tensions between the University of Minnesota and the Ojibwe people reveal a fundamental clash in their respective perceptions of food sovereignty. Because the Ojibwe believe that they have a moral obligation to manage and protect both wild rice stands and the interdependent relationships associated with wild rice, they perceive genetic research on wild rice for pecuniary purposes as disruption of this management, exploitation of an important cultural resource, and a threat to the stability of their relationship with wild rice and the wider ecosystem it depends on. In essence, genetic research compromises the Ojibwe's right to define their food system, which is the central tenet of food sovereignty.

In September 2003, Ojibwe tribal governments called for a moratorium on the University of Minnesota's wild rice breeding program, along with recognition and protection of their intellectual property rights to wild rice and an assessment of the ethics of wild rice genetic research (LaDuke 2007).[2] To date, their request has not been honored. However, in response to mounting pressure from wild rice farmers, Ojibwe communities, and concerned members of the public, the State of Minnesota passed legislation in 2007 that requires the state Environmental Quality Board to "notify interested parties if a permit to release genetically engineered wild rice is issued anywhere in the U.S." and to "adopt rules requiring an environmental impact statement for a proposed release of genetically engineered wild rice in Minnesota" (Environment, Energy, and Natural Resources Finance Act, S.F. No. 2096, 2007). Given, however, that even the U.S. government agencies responsible for regulating and overseeing genetically modified crops sometimes lack "basic information about the field-test sites it approves and is responsible for monitoring, including where and how the crops are being grown" (Walker and Doerfler 2009, p. 519), a contamination event could occur long before these measures are put into effect. Because biologists and wild rice researchers have no way of predicting how cultivated and genetically modified varieties will interact with lakebed wild rice, it is possible that cross-contamination

[2] For an independent assessment of the ethical implications of wild rice research, see Streiffer (2005).

could effectively alter the Ojibwe's entire wild rice management regime. Regardless of the plant species, seeds bred for uniformity typically require intense management such as increased mechanization and use of synthetic inputs (i.e., pesticides and fertilizer) to enhance productivity. If cultivated wild rice traits took over a natural lakebed, the plants would have a difficult time producing grain without a change in the Ojibwe's management regime. This inherently undermines the Ojibwe's ability to define their own food system. While no research institution in the U.S. currently has plans to produce transgenic wild rice, the possibility of contamination in any respect – whether from a genetically modified variety or not – would be harmful for the Ojibwe (Minnesota Department of Natural Resources 2008).

Considering the circumstances under which genetic research on wild rice has occurred – without permission from or compensation to the Ojibwe – we assert that both the University of Minnesota and Nor-Cal's actions are in violation of the White Pine Treaty of 1837. This analysis attempts to show that, in appropriating lakebed wild rice for breeding, patenting, and genetic mapping purposes, the University of Minnesota and Nor-Cal have exploited cultural resources and traditional knowledge for profit-seeking endeavors. By doing so, they have subordinated the rights of Indigenous communities to their established management practices, sacred customs, and culturally appropriate foods to the whims of industry and its intellectual property claims. This, in turn, compromises Indigenous food sovereignty and cultural identity.

Conclusion

Wild rice is central to the Ojibwe's cultural identity, and the Ojibwe people believe that they have a long-standing moral obligation to manage and protect natural wild rice stands. This relationship was recognized in the White Pine Treaty of 1837 and has been consistently upheld by state and federal law. The appropriation of wild rice for breeding, patenting, and genome mapping efforts for pecuniary purposes – efforts to which the Ojibwe gave no consent and for which they have not received compensation – undermines the intent of the treaty, which ultimately was to safeguard the Ojibwe's food sovereignty and the interdependent ecological and social relationships that support it. The Ojibwe peoples' objections to genetic research on wild rice reflect not only a concern about ownership claims to wild rice but also a concern about

maintaining the ability to control their relationship to an important cultural resource. If the Ojibwe are no longer able to manage this relationship in a way that preserves the integrity of the gift they were given, they are no longer food sovereign. Because self-determination regarding resource use, including food, is implicit in political sovereignty, the current genetic research on wild rice threatens the Ojibwe's political sovereignty as well.

Although the White Pine Treaty preserves the Ojibwe's access to wild rice by law, the opposing value systems and perceptions of "property" held by Euro-American researchers and corporations call into question whether this provision is sufficient for protecting the integrity of a resource that has been so central to the Ojibwe way of life. Destruction of the reciprocal relationship developed between wild rice and the Ojibwe people undermines the balance of an entire ecosystem that has been managed productively for generations. Importantly, Ojibwe people do not see themselves as existing beyond this network of relationships. White Earth tribal member, Joe LaGarde, expresses this concept when he states, "If we lose our rice, we won't exist as a people for long" (LaDuke 2007). Erma Vizenor, tribal chairwoman of the White Earth Nation, supports this notion further, stating that the Ojibwe have "for generations understood their connection to the *anishinaabe akiing* (the land of the people) in terms of the presence of this plant as a gift from the Creator…Wild rice is part of our prophecy, our process of being human, our process of being Anishinaabe…We are here because of the wild rice. We are living a prophecy fulfilled" (Minnesota Department of Natural Resources 2008, p. 5). Moreover, Winona LaDuke argues that "[a]ccess to traditional foods is an important element of restoring individual and community health of the Ojibwe people" (Minnesota Department of Natural Resources 2008, p. 8). Collectively, this sentiment demonstrates that Ojibwe people understand their survival as a people to be intertwined with the well being of wild rice and the ecosystem that supports it.

To the maximum extent possible, efforts must be taken to prevent the further exploitation of wild rice and to sustain the centuries-old body of traditional knowledge that the Ojibwe have constructed around this crucial cultural and ecological resource. Any viable solution must be created in collaboration with Ojibwe peoples and must protect not only the resource itself but also the entire set of reciprocal relationships that the Ojibwe have established with wild rice and the other non-human entities on the wild rice landscape. To truly reestablish these relationships, Ojibwe people must be allowed to restore an entire system of management based on reciprocal

respect. For this to ever be possible, expectations around plant research must change. First, patenting genetic resources associated with plants and animals essential to Native lifeways should be prohibited. Wild rice licenses and patents granted to the University of Minnesota and Nor-Cal, Inc. should be revoked so that these groups can no longer profit from wild rice manipulation. Nor-Cal's patent for the use of cytoplasmic-genetic male sterility in hybrid wild rice production should be nullified in order to eliminate the risk of indigenous wild rice sterility resulting from cross-contamination. Finally, any entities that have acquired intellectual property rights based on Ojibwe knowledge and cultural resources should be required to pay a one-time lump sum to the Ojibwe nation at least equal to the economic value of the market share the Ojibwe have lost since wild rice domestication efforts began. Together, these approaches would recognize the Ojibwe's contribution to the body of knowledge surrounding wild rice, as well as the genetic variability that researchers have capitalized on, which results, in part, from Ojibwe management of wild rice resources. Compensation could also provide Ojibwe peoples with financial support to rebuild their management relationship with the ecosystems that support wild rice. While Ojibwe ricers do all they can today to continue their traditional relationships with wild rice, taking these steps would support these endeavors.

The Ojibwe people's relationship with wild rice is not just ecological, it is also spiritual, cultural, medicinal, and economic. This relationship is an integral part of Ojibwe history and is central to their very identity as a Native nation. Norrgard (2014, p. 6) states that the 1837 and 1842 treaties represented "not only Ojibwe livelihoods but also their exclusive nation-to-nation relationship with the U.S." In other words, these treaties recognized Ojibwe political sovereignty. The White Pine Treaty of 1837 also specifically recognized Ojibwe food sovereignty and the people's right to manage and maintain important relationships with their food resources. Domestication, genetic research, and patenting activities related to wild rice threaten to compromise the Ojibwe's ability to manage these relationships and to maintain self-determination regarding how they access and use food resources. Thus, the threat to Ojibwe food sovereignty is effectively a threat to their political sovereignty and, by extension, a violation of the White Pine Treaty agreement and the subsequent legal decisions that have upheld the treaty. To this end, the United States government and the state of Minnesota have an obligation to uphold the provisions of the 1837 treaty agreement and to implement whatever measures

necessary to protect the Ojibwe relationship with the resources that have been a critical part of Ojibwe identity, tradition, and food sovereignty.

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