Wild Rice

Maps, Genes, and Patents

It is *Manoominike Giizis,* the "wild rice moon," and the lakes teem with a harvest and a way of life. "Ever since I was bitty, I've been ricing," Spud Fineday remembers.[1] He's from Ice Cracking Lake on Minnesota's White Earth Reservation. The wild rice harvest of the Anishinaabeg not only feeds the body, it feeds the soul, continuing a tradition that is generations old for these people of the lakes and rivers of the north. In Spud's childhood, all of the rice lakes teemed with ricers. Laughter punctuated the sounds of boats sliding through rice beds, poles slapping against the water, rice shafts being pulled toward the boat, the gentle "tapping" with cedar sticks, and the rice kernels raining into the boat and back into the water, reseeding for next year.

Each fall, the families would move toward their rice camps on the lakes, beginning in the Crow Wing Lakes to the south and east of the reservation, then moving with the ripening of rice to the northern lakes. The annual finale is at Big Rice Lake, where rice landings still retain names of families and villages—like Big Bear, Bonga, and Ponsford—reminiscent of the long tradition of gathering at lakeside for the annual harvest. The harvest has always been one of the quintessential elements of being Ojibwe. Today, there are fewer ricers. Wage jobs have curtailed the ability of many people to spend days traveling from lake to lake. Ricers are also challenged by the econom-

ics of wild rice in the age of globalization, mechanization, and misrepresentative advertising.

Despite globalization, the annual harvest is still met with great anticipation and excitement. The annual Tamarac wild rice permit drawing, the portioning out of ricing rights, commands a huge and restless crowd of determined Anishinaabeg who continue the tradition for sustenance of spirit, food for families, and income.

Scientists suggest that Minnesota wild rice stands "predate by 1,000 years the prehistoric cultures that were known to have used it."[2] Indeed, that knowledge is reflected within the oral history of the Anishinaabeg. *Manoomin* is a gift given to the Anishinaabeg from the Creator. As the story is told, Nanaboozhoo, the cultural hero of the Anishinaabeg, was introduced to rice by fortune and a duck.

> One evening Nanaboozhoo returned from hunting, but he had no game. As he came towards his fire, he saw a duck sitting on the edge of his kettle of boiling water. After the duck flew away, Nanaboozhoo looked into the kettle and found wild rice floating upon the water, but he did not know what it was. He ate his supper from the kettle, and it was the best soup he had ever tasted. So he followed in the direction the duck had taken, and came to a lake full of *manoomin*. He saw all kinds of duck and geese and mudhens, and all the other water birds eating the grain. After that, when Nanaboozhoo did not kill a deer, he knew where to find food to eat.[3]

In the earliest of teachings of Anishinaabeg history, there is a reference to wild rice, known as the food that grows on the water, the food the ancestors were told to find. The presence of this food, we were told, would signal the end of our migration from the eastern seaboard, where we had left our relatives the Wampanoags, the Lenne Lenapi, and the Abenaki. The Anishinaabeg moved over rivers, streams, and lakes to the Great Lakes region, where today a hundred or more reservations and reserves on both sides of the U.S.-Canadian border mark *Anishinaabe Akiing*, the land of the people.

Wild rice is a centerpiece of our community's sustenance. Wild rice offers amino acids, vitamins, fiber, and other essential elements, making it one of the most nutritious grains known to exist. The

wealth of rice has ensured that we have not starved over many a cold winter. It is this profound and historic relationship that is remembered in the wild rice harvest on the White Earth and other reservations—a food that is uniquely ours, a food used in our daily lives, our ceremonies, and our thanksgiving feasts. It is that same wild rice that exemplifies the worldwide debate on issues of biodiversity, culture, and globalization.

Manoominike: Making Wild Rice

The crispness of early fall touches my face as we paddle through the rice on Blackbird Lake. Four eagles fly overhead, and a flock of geese moves gracefully across the sky. Through the rice, I can see Eugene "Beebzo" Clark and John MacArthur continuing the harvesting tradition. As they move swiftly through the rice bed, MacArthur is knocking and Clark is poling. Clark stands in the back of the canoe, using a staff probably 18 feet in length, to push the canoe across the lake. In front of him sits Clark, with two elegant cedar rice knockers in his hands, pulling the rice over his lap with one knocker, and then gently tapping it with the second to release the kernels of rice. Clark started ricing at 14 and is 53 now. MacArthur began ricing as a teenager as well.

"We're out here to eat, not to make money," John and Beebzo tell me. A large extended family can eat about 200 pounds of rice from one year's harvest to the next. What they can't eat, the Anishinaabeg sell for the money they need to buy school clothes, fix cars, and get by in this cold country. "Sometimes we can knock 400 to 500 pounds a day," Spud says. Today he and his wife, Tater, will rice at Cabin Point Lake and then move to Big Flat Lake. Once the green rice is gathered, the Finedays and others will either process it themselves with a large kettle over a fire or take it to one of the few rice parchers in the area.

Today, there are only a few wild rice mills on the White Earth Reservation, a consequence of a number of factors including competition from agribusiness, decline in water quality, and—probably the greatest factor—the wage economy. Ronnie Chilton, Pat Wichern, and Russell Warren are three of the main processors on White Earth

today. Whether they're processing for sale, for tribal members in schools and other community programs, or for their own consumption, for these men and many others in the community, locally processed, lake-harvested, Native rice is about doing it right, about community pride and the essence of being Anishinaabeg.

These people and their community, however, are faced with a global market and find that the rice produced on Blackbird Lake is being eclipsed by rice production far away—rice grown from patented seeds on diked paddies, nourished with chemical additives, and harvested with huge combines—yet still called "wild" rice.

The Price of Rice

The Ojibwe have always recognized the value of wild rice and so have made sure that every treaty they signed included the guarantee of harvesting wild rice. The federal government and the state of Minnesota have long understood the financial value of the rice harvest, even when they did not understand its importance to the Native community. Research into wild rice began in 1906, when anthropologists from the University of Minnesota came to the reservations to ascertain the state of Ojibwe progress toward civilization. The "underproduction" of the wild rice harvest dismayed Professor Albert Jenks: "The primitive Indians do not take production very seriously.... In the case of wild rice,...they could gather more 'if they did not spend so much time feasting and dancing every day and night during the time they are here for the purpose of gathering.'" He noted with disdain the Ojibwe harvesting practices:

> Wild rice, which had led to their advance thus far, held them back from further progress, unless, indeed, they left it behind them, for with them it was incapable of extensive cultivation.... In civilization one class of people at least must have comparative leisure in which to develop short-cut methods of doing old things, of acquiring the traditions of the race, and of mastering new thoughts and methods. Such leisure is impossible with a precarious food supply. But, in spite of these facts, for barbaric people during the period of barbarism, the most princely vegetal gift which North America gave her people without toil was wild rice. They could almost defy nature's law that he who will not work shall not eat.[4]

A 1969 report to the Minnesota legislature, commissioned by the Minnesota Resources Commission, disparagingly characterized the Anishinaabeg relationship to wild rice as a "September Santa Claus," a "good berry Mardi Gras," and "the excuse and provision for a spending spree."[5]

Adding to the perception that the Ojibwe had it too easy was the recognition that many Ojibwe lived well from hunting, fishing, and gathering, hence the advent of the state game and fish laws, restricting Ojibwe as well as non-Indian hunters for many years. In many ways, the perception that "civilization" was best served by the Indians removing themselves from the land and, in turn, allowing access to the wealth of the land (i.e., fish, deer, etc.) by sports hunters, seems to underlay much of the colonial philosophy of the state of Minnesota. Not content with securing settlers' access to game, the state also committed itself, in the 1950s, to a program aimed at domestication of the wild rice crop.

Wild rice is incredibly diverse, growing in both lakes and streams throughout the Great Lakes region. Some plants are short, some tall; some kernels are fat, some skinny; varieties have distinct names like "crow foot" or "bottle brush"; the hues range from purple to light brown to greenish. Each rice variety tastes unique. The rice is also subject to the whims of the weather. A strong wind will knock off all the ripe kernels, leaving that which has not yet ripened. Drought or too much water affects both the quantity and quality of the harvest. Let's put it this way: There are a multitude of variables that make wild rice what it is.

Eliminating these variables is an important part of industrializing wild rice. It is about ensuring that all kernels ripen in a timely manner, so there is a small window for harvest. Industrial "wild" rice is grown in diked paddies, which are drained to allow harvest with a combine. Those commercial paddies require a uniform species of wild rice and often a set of chemicals and fertilizers for production. Needless to say, that rice does not taste the same as truly wild rice.

By the 1970s, increased production of wild rice grown on commercial paddies made an inferior imitation of a rare food available to ever-widening circles of consumers. The increase in production, growing public demand, and subsequent interest by the larger corporations (i.e., Uncle Ben's, Jolly Green Giant, and General Foods) permanently altered the market for traditional wild rice. Like other small farmers faced with competition from agribusiness, lake-harvested rice could no longer effectively compete in price with the corporations' mass-manufactured paddy crop. When the Minnesota state legislature designated wild rice as Minnesota's official state grain in 1977, that was perhaps the kiss of death for traditionally harvested wild rice. With an outpouring from the state coffers, the University of Minnesota aggressively began to develop a domesticated version of wild rice. Greed overtook the industry, as prices were fixed by a virtual wild rice monopoly, including, notably, United Wild Rice. The company was later charged by Minnesota's attorney general with violation of the state's antitrust laws, a case that was settled out of court in March 1981.[6]

Ironically, the state of Minnesota lost control over its official state grain to the state of California, which, according to grower Jerry Schochenmaier, offers ample sun, open acreage, and "control over the variables—water is bought, not rained down, no wind, and no hail. You just put it in, tend to it, and harvest it, pretty much like any other grain crop." The rice found in the major markets is quite different from the rice that grows wild in northern Minnesota. Commercially produced wild rice is processed black, parboiled, and scarified, so as "to get its cook time to match that of white rice," explained Schochenmaier.[7]

Today, California growers continue to lead the nation in wild rice production and only 15% of Minnesota's 7 million pound wild rice output is harvested from lakes—machines cull the rest from paddies. A glut of wild rice hit the market in 1986, causing the prices to plummet. Not only was the newly emerging domesticated market affected but the Native wild rice economy was also devastated as lakeside prices crashed. Many Ojibwe lost a major source of their livelihood. To add insult to injury, many of the paddy rice companies were selling a product as if it were wild rice, even in some cases using Ojibwe images in their advertising.

The Ojibwe decided to fight back, filing in 1988 *Wabizii v. Busch Agricultural Resources*, a lawsuit ostensibly on the issues of false and misleading advertising. Busch Agricultural Resources (a division of the beer conglomerate) marketed a product called "Onamia Wild Rice," which the plaintiffs, Mike Swan and Frank Bibeau, charged was in fact a California-grown paddy product disguised as "authentic" Minnesota lake rice. "They had two Indians on a canoe who appeared to be picking wild rice. They were taking a California-grown product, trucking it to Minnesota where it was packaged and designated as a Minnesota product," Bibeau remembers. Bibeau, a White Earth tribal member, is today an attorney for the Leech Lake tribal government. He has also processed wild rice to supplement his family income. "We had been overly patient and polite with the state of Minnesota, waiting for them to enforce their laws, yet they refused to make even one complaint for false and misleading advertising, and it became obvious that the only recourse for us was to file suit."[8] The case was eventually settled out of court, but it kicked off a public discussion about the difference between paddy-grown wild rice and Native lake-harvested wild rice. Eventually, Minnesota passed a law requiring Minnesota paddy wild rice producers to label their product as such, with the lettering for "paddy rice" no less than half the size of the words "wild rice." A small victory in the age of globalization.

Indian Harvest or Dutch Harvest?

The labeling law, however, has some pretty big loopholes in it, the largest of which is that California-produced wild rice is not subject to Minnesota's labeling laws. Nor, it seems, is there much concern about possibly misleading advertising. The wild rice market today is worth about $20 million. Not the largest of the grains by any measure, but one with a lot of interest for a variety of companies. Companies like Stouffer's, Uncle Ben's, Fall River Wild Rice, and Gibbs Wild Rice are all big names in the industry.

Processing about three-quarters of the national wild rice crop is a company called Indian Harvest Wild Rice. The company has some Minnesota origins, but today processes all of its rice in California. Jerry Schochenmaier, now deceased, was the manager of Indian Harvest for over a decade, and described its origins: "The rice mill was originally designed to be in Bemidji [the footings for the building are still at Bemidji's industrial park], but California was identified as the place to produce rice, if you were going into the business."

Although some lake rice was historically in its program, Indian Harvest is pretty much an operation with few "Indians" today. A truer name for Indian Harvest Wild Rice might be "Dutch Harvest Wild Rice" since it's a subsidiary of a Dutch American family-based Minnesota holding corporation, Duininck. And both present general manager Gene Adding and California plant manager Don Kuken (both of whom are really nice guys) are of Dutch ancestry. Asked about the origins of the name, Adding recalls, "The original wild rice that they sold was hand-harvested, that was the tradition in Minnesota. Once you build up a name and identity with the customers, it's hard to change. I think it was founded on correct principles; whether or not that has followed through, that might be something someone would want to look at some time."[9] In this era of Cherokee jeeps, Crazy Horse beer, and Indian motorcycles, it seems a good question to ask.

In addition to the big companies like Indian Harvest, there are a host of California farmers who rely extensively on chemical inputs, and there are some organic wild rice farmers in Idaho, Oregon, and California. Then there are the seed companies, including Norcal Wild Rice with its patented seeds for wild rice. What they all share, from an Anishinaabeg perspective, is that they are beneficiaries of biopiracy, all having work to do with seeds they were not given by the Creator.

Gene Hunters and the Map of the Wild Rice Genome

> We stand to lose everything, That's what we're looking at—the future of our people. If we lose our rice, we won't exist as a people for long. We'll be done too.
>
> —Joe LaGarde, White Earth Reservation ricer and historian[10]

University of Minnesota plant geneticist Ron Phillips and his colleagues have just finished mapping the wild rice genome. Phillips, Regents Professor and McKnight Presidential Chair in Genomics, is an affable guy, who looks at his work as strictly scientific. Yet, the research Phillips is conducting promises benefits beyond abstract science. Phillips writes in his recent study that his work is considered "the reference point for...gene cloning."[11] His genomic data on wild rice is now available for public use courtesy of GenBank, a lab at Cornell University. At a 2005 legislative hearing on a bill to ban genetic engineering of wild rice, Phillips underscored that he had not genetically engineered wild rice, but that he wanted, in true "scientific pursuit," the right to do so.[12]

While the future uses of such scientific data are at present unknown, we can be relatively assured as to who will most likely reap the benefits of this knowledge. Just a few paddy rice firms dominate the $21 million wild rice business. Their interest in genetic work on wild rice stems largely from their own economic interests, not environmental, humanitarian, or tribal interests. More than that, university collaboration with seed companies may be common practice, but some of us take notice when two of the four researchers in the wild rice genome study (Alan W. Grombacher and Wayne C. Kennard) come from little companies like DuPont and Monsanto, the two largest seed companies in the world. Their interests are more likely in terms of gene prospecting: securing DNA material from wild rice to assist in rice crops elsewhere. That would be a start, at least.[13]

One company that has already promised more biotech rice development is Syngenta, an agricultural giant whose largest investments are in the area of rice. In 2002, Syngenta put restrictions on access to its maps of the japonica rice genome and caused a great furor. Dr. Lynn Senior, Syngenta's representative at a national agriculture conference, spelled out Syngenta's biotech growth projections. Referring to North America as "biotech friendly" (as opposed to most of the world, which has expressed significant doubts about genetically modified foods), Senior projected rapid "roll outs" of various biotech crops, including more rice.[14]

The practice of mixing genes of differing plants or other organisms—called "transgenics"—allows geneticists to create new and unique species of plants and animals, species that would never exist without intensive human and technological intervention. When an Australian team applied for a patent for their research combining genes from commercial and wild rice, the Anishinaabeg, along with a host of environmental, food safety, and other organizations, challenged their claim.[15] Watching for patent claims is a bit like looking for a needle in a haystack. Although the Australian patent claim was denied at the U.S. Patent and Trademark Office, the Anishinaabeg anticipate that the researchers will continue their work and their pursuit of patents.

The concerns about transgenics have sparked a worldwide struggle that reaches far beyond the rice of the Great Lakes region. In September 2001, the Mexican government made a public announcement that transgenic sequences of genetically engineered corn had contaminated indigenous corn varieties, in violation of a law banning the importation of genetically modified maize. The Indigenous communities of Oaxaca had wanted to certify that their corn was being produced free of genetic engineering, and instead learned through the certification process that their corn indeed tested positive for transgenic sequences. Fears increased as reports stated that the probable contaminant was a Bt gene.[16] Engineered for its insecticide properties, Bt inadvertently poisons milkweed, the food of monarch butterflies, a migrant species that winters in Mexico.

From the villages of Mexico and India to the villages of northern Minnesota, there is a marked loss in worldwide biodiversity, and a closer hold on who controls the remaining seeds of the world. Monsanto, the creator of Bt, has spent upward of $8 billion in the last couple of years buying up U.S. seed companies, and DuPont recently purchased Pioneer, the second-largest seed company in the world. This concentration of control over world seed stocks is alarming farmers worldwide, especially considering that the closer seeds seem to be held, the fewer there are. In the United States, only 20% of the plant varieties found in a 1904 inventory of crops are still grown commercially or held in collections.[17] Similarly, China has experienced a 90% loss in wheat varieties since World War II. In terms of natural varieties (as opposed to domesticated), the World Conservation Union reported in 1997 that one out of eight plants surveyed internationally is potentially at risk, with extinction rates presently at 1,000 species a year. The highest extinction rates of plants is in the United States.

Of particular concern for millions of poor farmers worldwide who would usually save seed from one crop to the next is the "terminator" seeds, which are genetically bred or engineered to yield plants whose seed will be sterile. With terminator seeds, farmers have to buy seeds they would normally produce themselves. Of course this means more income for the seed companies. As with the unintended consequences of Bt for monarch butterflies, we can't be sure of the future consequences of the wild rice genome studies, but we can be sure that companies like Monsanto don't come to wild rice country without a lot of suitcases.

Patents and Biopiracy

> When we sow seed, we pray: May this seed be exhaustless. Monsanto and the USDA [U.S. Department of Agriculture], on the other hand, are stating: Let this seed be terminated so that our profits and monopoly are exhaustless.
>
> —Vandana Shiva[18]

I'm not sure that Ken Foster has ever seen a northern Minnesota lake as the wild rice softly sways in the warm wind of *Manoominike Giizis*. Nor perhaps has he ever heard a loon, calling a mate across the deep blues of the lake. Perhaps he should. In Woodland, California, 1,500 miles away from Minnesota, Foster and his colleague Zan Hua Zahn of Norcal Wild Rice have successfully patented wild rice.

There was quite a bit of alarm when the Ojibwe heard of the patent. The first sort of inclination was, "How the hell could they do that?" After all, the Creator gave *manoomin* to the Anishinaabeg, not Norcal. For a thousand years or so, the Ojibwe have carefully managed and cared for that wild rice crop. The people have seeded lakes, managed water levels, tied rice heads together in harvest, and held

prayers and thanksgiving feasts for each harvest. "I looked through and read the whole 30 pages of the patent," explains John Pershell of the Water Quality Research Department of the Minnesota Chippewa Tribe, and "nowhere did it mention anything about the wild rice being wild or coming from somewhere. That was sort of a problem."[19] Wild rice is about as Ojibwe as it gets, and in that context, Norcal is a biopirate.

The Ojibwe's second major cause for concern is that the version of wild rice described in the patent is sterile. This "cytoplasmic genetic male sterility" is somewhat of a mouthful for the commoner, but it basically has the same meaning as the phrase "terminator seed," and the news sent a shudder through *Anishinaabeg akiing*, the land of the Ojibwe.

This sterility may well prove to be the most controversial aspect of the patent. Wild rice is like corn in that it reproduces a certain way. Many plants, including cultivated rice, have sex cells that co-exist in each flower, and consequently allow the plant to pollinate itself. But corn and wild rice are different. They are cross-pollinators, meaning that their male parts (the stamen in corn and sprigs of tiny petals at the base of the wild rice flower) shed pollen that fertilizes adjacent plants.[20] Of major concern to the Ojibwe is the possibility that some of this sterile variety might eventually diminish the very essence of our sustenance.

Some of the concerns about the sterility in the Norcal seed and patent have historical foundations. After 15% of the hybrid corn crop was wiped out in 1970 by southern leaf blight fungus, scientists discovered that the plants most susceptible to the fungus were those with a genetic trait called the "Texas cytoplasmic male sterility factor, which had been inbred to eliminate expensive corn detasseling."[21] Within that context, there are some spiritual dimensions to this discussion. While our communities for thousands of years have prayed each year for rice fruitfulness and given thanks for the bountiful harvest, genetic manipulations and the introduction of sterile seeds is the spiritual opposite.

Although university researchers like Ron Phillips distance themselves from "genetic engineering," Phillips admits that there is a small possibility of some transference between the two varieties. When asked if the domesticated strain of the stronger paddy rice might possibly overpower the wild strains in the lakes and rivers, Phillips answered, "It's not the kind of thing you could control perfectly."[22] Some University of Minnesota scientists admit that the tribes may have some need for concern. Professor George Spangler asks, "What is the economic outcome of this research?...There's little documentation that the university has ever been overtly concerned about how its research affected this culture....I'm not saying that all the scientists here are arrogant. But it was there in the attitude of the university being surprised that the Native community had any interest in this."[23]

Just a small possibility of any genetic alteration of the rice is enough to concern the Ojibwe. Joe LaGarde from the White Earth Reservation voices the concerns of many: "Man thinks he can improve on something that's been developing over thousands of years. Eventually, he might end up with nothing."[24] The Minnesota Chippewa Tribe echoed this in a letter to the University of Minnesota. "We object to anyone exploiting our treaty wild rice genus for pecuniary gain," then-Tribe President Norman Deschampe wrote in late 1998, referring to the 1837 treaty between the Ojibwe and the U.S. government that recognized Ojibwe rights to harvest wild rice.

> The genetic variants of wild rice found naturally occurring on the waters in the territories ceded by the Minnesota Chippewa Tribe to the State of Minnesota are a unique treasure that has been carefully protected by the people of our tribe for centuries.... We were not promised just any wild rice, that promise could be kept by delivering sacks of grain to our members each year. We were promised the rice that grew in the waters of our people, and all the value that rice holds...a sacred and significant place in our culture.[25]

For the past five years, the Anishinaabeg community has requested that the University of Minnesota stop its genetic work on wild rice. Virtually every tribal government and Native organization in the region has repeatedly called on the university to stop. Finally, after attorneys for the Ojibwe sent a set of Freedom of Information

requests, the University of Minnesota began a "dialogue." The research in contention, however, continues unabated. What part of "No" is hard to understand?

Academic Freedom and Ethics

It was about a century ago that the University of Minnesota dispatched its first anthropologists to the reservations in the north. Albert Jenks came, joining his colleague from the Smithsonian Institute, Alex Hrdlicka, a physical anthropologist who specialized in comparing Indigenous peoples' heads to those of monkeys. The two came to White Earth, calipers in hand, and measured the heads of the Anishinaabeg. Then university board of regents member and U.S. Representative Knute Nelson introduced an act "for the Relief of the Chippewa Indians of Minnesota." The passage of the act allowed for the allotment of the White Earth Reservation and the creation of a blood quantum scandal wherein physical anthropologists turned individuals from full-bloods into mixed-bloods, miraculously allowing them to "sell their land." (See the "Imperial Anthropology" chapter for more material on physical anthropology and genetics, and the "Klamath" chapter for more on allotment.) The consequences of this University of Minnesota research were to cost the White Earth Anishinaabeg most of their reservation lands. So began what would become a rather dysfunctional relationship between the land grant institution, the University of Minnesota, and the Anishinaabeg and other Indigenous people of Minnesota.

The University of Minnesota website once claimed: "University of Minnesota research changes lives and improves communities."[26] Well, sort of. At the International Wild Rice Association meeting in Reno, Nevada, I listen to University of Minnesota extension agent Raymond Porter attempt to dispel some of the criticism levied at the university by tribal representatives. Suggesting that the criticisms have been based in part on "misunderstanding and faulty conclusions," Porter contends that most of the issues raised by the tribes have been addressed by research and a number have been cleared up. His essential argument, presented in graphic form, is that the more

the Native community understands about modern science and plant genomics, the more that community will be happy with the research.

Porter's turf is the heart of Minnesota cultivated wild rice research: an agricultural extension and experiment station in Grand Rapids, Minnesota, into which hundreds of thousands of dollars of research money for paddy-grown wild rice varieties have poured, and from which new paddy rice varieties have been developed. In 1963, the Bureau of Indian Affairs (sort of keeping with Albert Jenk's better productivity strategy) began providing funds to the agricultural experiment station for work on wild rice. Subsequent federal funding levels kept on rising, with $100,000 a year being allocated to wild rice research largely at the university extension offices. By the late 1990s, the USDA, for instance, allocated more than $200,000 for Porter's research.

And he did produce. Over the years, Porter's extension office was able to "create" several strains of "wild" rice.[27] Now that brings up a question. *Are the varieties developed by the University of Minnesota researchers possibly contaminating the wild rice stands of the Anishinaabeg?* Put it this way: There are around 6,000 bodies of water with significant wild rice beds in Minnesota or around 60,000 acres of rice. Those lakes are within close proximity to around 20,000 acres of cultivated wild rice paddies.

Pollen Drift and Those Ducks

Anishinaabeg advocates have long contended that paddy rice stands are contaminating the natural rice stands. Ron Phillips claims there is little chance of cross-pollination as long as approximately 660 feet separate the two kinds of rice. The university extension office did some research, however, that appears to validate Anishinaabeg concerns. In the summer of 2002, wild rice researchers undertook a study of possible pollen drift from paddy rice stands into wild stands. After a lot of different mathematical formulas, the bottom line is a possibility of between 1% and 5% of the pollen drifting up to *two miles* from the test plots.[28] Last time I checked, there was a whole lot more than 660 feet in two miles.

Then there is the problem of the *zhiishiibig*, the ducks. Surprisingly enough, there have been no systematic studies simulating duck and waterfowl movement in the wild rice area. Ducks and wild rice are a part of traditional Anishinaabeg stories, and will likely be in the future. Ducks and waterfowl do not differentiate between paddy rice plots and natural stands of wild rice, and move freely between them both, carrying the rice and the pollen from one to the other.

There is no security in the answers. "It depends on what you are willing to accept as a threshold of risk," Phillips says.

> The possibility of a trait coming in from one of the bred varieties that would significantly alter the wild type is probably not very great. But it is possible. So you can't guarantee that it won't happen; you can't guarantee that a bird won't pick up a weed and take it 20 miles away. So that's where you have the conflict.... You've got to agree on some threshold, and in our discussions [with the Anishinaabeg], some people said, "Well, one in a million is too great a risk."[29]

Intellectual Property

There is a somewhat similar story of rice that is far away geographically, yet close in implications. Basmati, the "crown jewel" of South Asian rices, is prized for its delicate aroma and taste, and commands a premium price at the market. Hundreds of thousands of small farmers in Pakistan and India have planted innumerable varieties of basmati rice, rice that they have grown for centuries. In September 1997, Rice Tec, a Texas-based company, won a controversial U.S. patent for basmati rice.

The World Trade Organization's Trade-Related Intellectual Property Rights (TRIPs) Agreement provides for some protection where the reputation of a product and its quality are attributable to its geographic origin, such as French champagne and Scotch whiskey. While this provision currently applies only to wine and spirits, a number of countries are seeking to expand and strengthen the protection of their products.[30] The Peruvian government is drafting a law to protect Indigenous intellectual property rights and to ensure the preservation of local biodiversity. "Peru is one of the countries with

greatest biodiversity in the world and must begin utilizing the competitive advantage this implies," said Jorge Caillaux, president of the Peruvian Environmental Law Society, "but, it must protect its natural resources as well as the rights of its population."[31]

Increasingly, tribal governments nationally and internationally are looking to enact ordinances preserving their intellectual and cultural property rights, finding that these reservoirs of genetic diversity that lie within their territories should be guarded so that future generations may have some part in their continued relations with the broader ecosystem. The Indigenous Peoples Council on Biocolonialism, in particular the work of executive director Debra Harry, includes new work on tribal ordinances to protect these rights. The Indigenous Research Protection Act (presently under consideration by a number of tribal governments and enacted by the Little Traverse band of Odawa, among others) would potentially protect tribal interests in a broad array of cases, whether biogenetic resources (including plant material, animals, microorganisms, cells, and genes), cultural research (e.g., anthropological studies, medicinal plant research), and traditional Indigenous intellectual property, which may be sounds, knowledge, designs (for instance, northwest coast clan designs), or other elements integral to a community.[32] In early 2005, the White Earth and Fond du Lac bands of Ojibwe in Minnesota both adopted ordinances banning the use of their wild rice for the purpose of genetic modification or the importation onto the reservation of any genetically modified wild rice seed. Also in 2005, the Minnesota legislature began consideration of a law banning the creation or importation of any genetically modified wild rice into the state.

Elsewhere, there have been some successful challenges to patents and other forms of biopiracy. In 1994, two researchers at the University of Colorado were able to secure a patent on quinoa, much to the surprise of Native farmers in the Andes of Bolivia and Ecuador who had raised it for thousands of years. The patent had been awarded on the basis that the individuals were the inventors of the quinoa, and gave them exclusive control over the traditional Bolivian sterile male variety called "Apelawa." The patent also extended to all hybrids developed from breeding of at least 43 traditional varieties of

quinoa. In 1998, the Bolivian National Quinoa Producers Association and an international support network successfully forced the researchers to drop the patent. Similarly, a group of Indian organizations and allies successfully challenged a patent at the European patent office secured by the W. R. Grace Company for the neem tree, and in 1999, the Coordinating Body of Indigenous Organizations of the Amazon Basin (COICA) successfully challenged a U.S. biopirate intending to commercialize, after patenting, the use of ayahuasca, a medicinal plant of the Amazon.[33]

Water Levels and Bad Development Projects

While paddy rice continues to flourish in the diked paddies of northern California, native rice stands in the North Country of Minnesota, Wisconsin, Manitoba, and Ontario may be diminishing. One culprit is the water levels, raising questions about who controls them and why. Dale Greene, a traditional leader from the Rice Lake band of Anishinaabeg, tells me that the harvest on Rice Lake itself (near McGregor, Minnesota, as opposed to Rice Lake on the White Earth Reservation) began to decline in 1934 when the U.S. Fish and Wildlife Service dammed the lake and managed it for waterfowl production. Organic material was then trapped in the water. "There's so much sediment on the bottom, the seeds never get to the bottom to germinate," he explains. "There used to be 300 to 500 boats out here. Now...maybe 40...in a good year."[34]

Rice Lake is one of many Anishinaabeg *saagi'aganinan* (lakes) impacted by the U.S. Army Corps of Engineers in its frenzy to alter the flow of water, seemingly everywhere in the country. Under the justification of "stream management," the Corps began massive wetland draining efforts to make room for farms and building sites, and to reduce flood damage to communities along the Mississippi River. This devastated most of the rice beds in the region. The harvest at Lake Winnibigoshish, once a major rice lake, for instance, is at a fraction of its earlier yields. In Canada, the Fort Alexander Indians at Lac DuBois near the mouth of the Winnipeg River must now paddle 50 miles upstream, portaging around hydroelectric dams, to get to rice beds. Stanjigoming Bay on Rainy Lake in Ontario was also a prime

ricing location until the Fort Frances Dam was installed for the benefit of the lumber companies.

In the early 1920s, Northern States Power Company (now known as the XCEL Corporation) took control over the flowage on the Chippewa River in Wisconsin. The erection of the Winter Dam drowned villages, forced resettlement, and submerged the rice beds on the Lac Courte Orielles Reservation. The damage has neither been forgotten nor forgiven. In the early 1970s, the Lac Courte Orielles Ojibwe staged an occupation of the Winter Dam site, and today continue their demands for both compensation and alteration of the dam structures.[35]

Minnesota's Leech Lake Reservation is today the largest wild rice producing reservation in the country, with an average of 180,000 pounds of rice processed from their bountiful lakes. (Imagine if Lake Winnibigoshish was still producing its full potential.) But in 2000, there was a huge crop failure; only 19,000 pounds ended up getting processed. The culprit was high water levels due to poor management by the Army Corps of Engineers. "A lot of our major rice beds are on impoundments managed by the Army Corps of Engineers. They open these dams and manage this water for recreation and flood control, not for rice," explains Steve Mortenson, Fish and Wildlife Biologist for the Leech Lake band. Although the Corps is presently studying the management of the reservoirs in the Upper Mississippi region, the Leech Lake band, like others, is pretty much taking a "wait and see" approach. There is not a lot of historical goodwill between the tribes and the federal government on the issues of water.

Of additional concern to many Ojibwe is the toxic contamination of some of the prime rice stands (and subsequently our bodies), and the lack of state or federal actions to provide redress. The Grassy Narrows community of Ontario, for instance, was devastated in the 1960s and '70s by mercury contamination (to a level comparable to the contamination in Japan's notorious Minimata Bay) from the Dryden paper mill and chemical complex. Anishinaabeg communities for 300 miles were devastated.[36]

The increasing prevalence of both paper mills and wood-processing facilities has meant that wild rice continues to face myriad threats. The Leech Lake Reservation in Minnesota is home to a huge wild rice crop, yet the St. Regis Paper Company, whose operations spanned from the village of Cass Lake to Pike Bay on Leech Lake, was permitted to operate under lax environmental standards. Beginning in 1958, St. Regis produced railroad ties, telephone poles, and bridge supports, all using a soup of chemicals including pentachlorophenol, creosote, and others. Industrial waste was dumped into the city landfill, the fish hatchery, and surface-disposal ponds. Twenty-five years later, the facility is a superfund site owned by International Paper, which has yet to complete the clean-up of the toxic waste. In short, extractive industries leave long-term impacts on a traditional way of life.[37]

To add insult to injury, on numerous occasions Ojibwes were arrested for ricing off reservation or without a permit. Since 1985, when Gordon Henry, Jr., was arrested for "poaching rice" south of the White Earth Reservation, few tribal members have sought to challenge the off-reservation ricing laws.[38] The 1999 U.S. Supreme Court decision in *Minnesota v. Mille Lacs Band of Chippewa Indians,* recognizing tribal rights to harvest off reservation, makes a challenge to state licensing requirements more likely to succeed.

Other threats include invasive plants, pollution, boat traffic, agricultural runoff, and, of course, the beaver. While beavers have obviously coexisted with rice beds for thousands of years, a decline in trapping and a removal of natural predators, especially wolves, means beavers, with all their ambition, rule the northern woodlands. The Minnesota Chippewa Tribe, among many interests, asserts that state funds could be better spent on habitat issues rather than genetic research. John Pershell, director of the Minnesota Chippewa Tribe's research lab, points to the thousands of acres of wild rice that have been destroyed by state development projects, and argues for both state work to protect the natural stands and more state enforcement of labeling laws.

Food on the Water: Rice Lake and the Crandon Mine

In 2003, the Ojibwe of the Mole Lake Reservation in Wisconsin saved their rice beds, and they saved their homeland in the process. For the past two decades, there has been a pitched battle between the Ojibwe and mining companies over the future of these rice beds in the northeastern portion of the state.

"The rice is why we came to Mole Lake hundreds of years ago," notes Fred Ackley, Jr., one of the Sokaogon Ojibwe's elders. "We depend on that rice. Like the rice, we depend on clean water and land. Now, the mining company can buy its way in here, take its profits and go, maybe leaving the land and water ruined. You can understand why we feel under siege here."[39]

The Mole Lake Reservation sits on a tiny 1,900-acre tract of land, a small patch within the 92,000 acres promised the Sokaogon Ojibwe under the 1854 treaty. The Sokaogon Ojibwe people, however, maintain an interest in the larger area, and are concerned about keeping that small bit on which they live. The community has fought off the largest corporation in the world, Exxon, and a succession of mining companies, with amazing tenacity and an incredible ability to ally with a broad range of forces.

The first mining company to set its eyes on the Sokaogon territory was Exxon, which in 1976 announced the "discovery" of a massive copper-zinc formation near the town of Crandon, Wisconsin, just two miles from Mole Lake. Exxon proposed to dig down 2,800 feet, pump an estimated 1,000 gallons of water per minute from the mineshaft (for some 25 years or so), and dig out some 55 million tons of ore. It would leave behind 44 million tons of waste pilings.[40] That proposal sent shudders through the Sokaogon community. The Anishinaabeg "were not reassured when Exxon's biologist mistook their wild rice crop for 'a bunch of weeds.' Exxon's own environmental impact report blandly mentioned that 'the means of subsistence on the reservation' may be 'rendered less than effective.' "[41]

The project, if actualized, would create Wisconsin's largest-ever toxic waste dump. Data from the mining company itself indicated that groundwater contamination would impact the area for more

than 200,000 years. The mine's dewatering would impact not only the immediate mine area but Mole Lake, the precious wild rice beds of the Ojibwe, and the Wolf River, one of the most pristine rivers in the nation as well as the centerpiece of the Menominee Nation.[42]

Exxon may have been a bit optimistic when it reported, in a 1980 article in *American Metal Market*, that it "expects to begin serious prospecting of a rich 70 million ton zinc and copper ore body at Crandon, Wisconsin, next year while it works to neutralize objections from environmentalists, residents and Indian tribes in the area."[43] An outpouring of political organizing led to the creation of a statewide coalition opposing this mine as well as more hardrock mining in Wisconsin. Diverse tactics included a successful effort by the Mole Lake tribal community to secure federal status of water quality management, called "treatment as state," through which the tribe opposed the mine's potential detriment to the quality of tribal waters. Finally, in 2003, the mining industry gave the state of Wisconsin the lowest ranking of viability in terms of investment opportunity for potential new mines. Following that, the Mole Lake band joined with the Forest County Potawatomi to purchase the contested mine site and retire the mining operation forever from the horizon. Today, the Mole Lake band is still looking for financing to cover the mortgage for the purchase.

The preservation of wild rice and the biodiversity of the rice crop concerns many far outside the realm of the Mole Lake or Leech Lake reservations. Even Ervin Oelke, a retired University of Minnesota agronomist who has worked with wild rice for more than 20 years and was quite instrumental in its commercialization, worries about maintaining the reservoir of genetic diversity contained within the uncultivated rice stands.

> We should be concerned about losing any kind of plant species, because we never know what they might be useful for.... With wild rice in particular we're concerned because we are now in the process of domesticating the species. It's important we have all the genetics that are available to us to [further] develop this crop.[44]

It is ironic that what *Gichi Manidoo*, the "great" or "loving spirit," gave the Anishinaabeg—wild rice—suffers under public policy until those who forgot it recognize its potential benefit to their own interests. Thus the wild rice of remote Native communities is inevitably linked to worldwide debates on biodiversity, genetic engineering, and, indeed, the future of our foods.

Tribal Laws and Cultural Property Rights

There is, at the center of this, a huge conflict of worldviews—a conflict that has life-transforming implications. "Are plants on this Earth for all people or are they here for just one group?" wonders Oelke. "The issue, I think, boils down to this question of, 'Whose plant is it?' My answer is that I think plants should be used by as many people as possible, for the benefit of humans."[45]

Paul Schultz, a White Earth elder, insists that the conflict

> is not about ownership, because that concept implies the right to dispose of or otherwise manipulate "property." And that privilege was never given to science. Scientists have [taken] that right [to manipulate wild rice] for so long that they somehow think 50 to 200 years justifies it for all time. What we are saying is that if you've been making a mistake for 50 to 200 years, that doesn't make it right today.[46]

There may be fewer rice buyers on the White Earth Reservation, but as long as there is rice, there will always be ricers. Back on Round Lake, a pickup truck pulls up at the rice mill. Eugene Davis and Tony Warren bring in around 300 pounds of rice from South Chippewa Lake. They are tired and wet from the recurring rain of morning, but they are happy. "This is the only job we can make $50 an hour at up here," 20-year-old Davis tells me. "I like it when it rains out there. It's nice. You can't hear anything but the rain." It is that peace that brings the ricers back. It is also the memories. I ask Davis what he thinks about the fact that probably five or ten generations of his family have riced on South Chippewa Lake. "I like knowing that they was on the same lake. It makes me feel good," he responds with a smile.[47]

Receiving the rice are Ronnie Chilton, Pat Wichern, Pete Jackson, and a few other men who gather in the new rice mill at Native Harvest on Round Lake. The sweet smell of rice parching wafts through the dusty air, machines shift and creak, and the rice slowly moves through a long chain of events, at the end of which the shiny, dark green, tan, and brown wild rice will glimmer in the September sun. The equipment is old and much of it handmade: a 1940s' Red Clipper fanning mill, a handmade thrasher, a 1980s' set of parching drums made by George Stinson (a regional celebrity), a 1950s' vintage gravity table. Most of the newly produced equipment is for large operations like those in California, not here. The men fiddle around with the machines, fine-tune the gravity table, and then the rice comes pouring out. They are local producers, and this is the quality perfection of the small batch and the simple joy of this life. The air is filled with dust as the husks are blown from the rice. Ronnie, Pat, and Pete look a bit like Anishinaabeg chimney sweeps, covered in rice hulls, but they grin through the dust. They are doing their job, and that rice, like that of their ancestors, is going to feed families and spirits.

This season—the Anishinaabeg wild rice moon *Manoominike Giizis*—is the season of a harvest, a ceremony, and a way of life. "I grew up doing that," reflects Spud Fineday. "You get to visit people you haven't seen for a whole year because just about everyone goes ricing." Far away, a combine is harvesting paddy-grown wild rice somewhere in California, some biopirates are hunting for genes, and consumers are eating a very different food. The Anishinaabeg would not trade. In the end, this rice tastes like a lake, and that taste cannot be replicated.