

HUNGRY FOR CHANGE:



The Struggle for the Tohono O'odham Native Food System

Caitlin Peel

May 1, 2008

Urban and Environmental Policy

Senior Comprehensive Project

Professor Robert Gottlieb

Professor Martha Matsuoka

Acknowledgements

There are many people I would like to thank for their help and support throughout this entire process. First, I would like to begin by truly thanking my two advisors on this project, Professor Robert Gottlieb and Professor Martha Matsuoka. Without their constant advice, readings and feedback, I do not think my final paper would have been nearly as complete or well-written. I also want to thank them for sticking it out with me, and pushing me to new heights. I would like to thank Professor Peter Dreier as well, because he has helped shape me into the UEP student I am today.

Next, I would like to thank all the UEP seniors. I am proud to say that I am a part of this department, and have been thoroughly impressed with the work that I have seen done this year on comps. We are a great group together, and I want to thank you all for the support and encouragement you gave me.

My FMHN housemates, Julia Granholm, Laura Benjamin, and Renae Rykaczewski, also deserve a due thanks. I know it has been a hard year with all four of us trying to finish comps and graduate on time. Yet, even in light of everything, I think we still had a great time and made our final year something worth remembering. Thanks for everything.

Finally, my family deserves a much needed thanks, especially my mother. Without their support and ability to understand the comps procedure from a removed perspective, I would not have been able to stay as relatively sane as I did. In particular, my mom really emphasized her pride in my work, and helped me to see the light at the end of the tunnel. Thank you for always being there for me.

TABLE OF CONTENTS

Chapter One: Introduction	3
Methodology and Limitations	6
Personal Story	7
Chapter Two: Background	9
Culture and Tradition	10
Assimilation Grievances and Politics	12
Current Work on the Depleting Food System and Diabetes	15
Chapter Three: Tohono O’odham Community Action	24
Chapter Four: Native Seeds/SEARCH	29
Chapter Five: Analysis of TOCA and NS/S	35
Cultural Ties	36
Obstacles	37
Strategy Differences: Seeds vs. Organizing	38
Chapter Six: Policy Recommendations	41
Public Campaigns	43
Federal Policies	44
Grassroots Organizing	45
Chapter Seven: Conclusion	48
Appendices: Appendix A – B	52

Food disparity affects people all over the world. Due to many reasons based on environmental injustice, many groups of citizens are unable to gain access to healthy foods. This injustice is most prevalent in urban centers in the U.S., where it disproportionately affects low-income communities of color. However, Native American reservations are increasingly becoming victims of this problem, yet are receiving little attention or education around it. Poor nutrition and diets that consist of prepackaged, processed foods lead to serious health problems, including diabetes, heart disease, and obesity, for everyone. Yet Native Americans face a unique threat: a loss of culture and identity from limited access to their native foods and farming practices. Food is vital to the survival of their indigenous ways, and with junk food becoming a staple in their diet, cultural genocide and loss of genetic diversity in native crops is impending. The focus of this research project is to address how two local organizations, Tohono O’odham Community Action and Native Seeds/SEARCH, work to combat the depleting native food system of the Tohono O’odham tribe, and address the subsequent larger issues at hand, including a loss of community and traditional culture.

Food access in the United States is a current issue that directly affects poor communities of color disproportionate to the rest of the nation. Due to the fact that these communities are typically located in urban centers with no full-service food retailers, the health of the residents is compromised. A full-service grocery store is “a retail food outlet that offers fresh produce and perishable grocery items, such as meat and dairy products.”¹ In comparison, the stores that pepper the corners of the urban

¹ Hatfield, Doe and Analisa Gunnell. “Food Access in California Today.” [The Vivid Picture Project](#). October 2005,

neighborhoods “are generally stocked with alcohol, tobacco, and prepackaged foods that are high in fat, salt and sugar. There is an emerging literature that documents the relationships between food access, quality of nutrient intake, and health outcomes.”² Statistically speaking, studies show that in 2002 there was one grocery store per 18, 649 people in Los Angeles County. In one low-income neighborhood in Los Angeles, one grocery store served 27, 986 people.³ The numbers are astounding and prove that the minimal grocery stores in those areas cannot feed the entire neighborhood population, resulting in a dependence on the unhealthy food in corner stores. Besides limited resources to feed that many people, transportation also limits people to get to full-service grocery stores. “More than one million urban eaters are without cars (in Los Angeles). Of this group, 28% live more than ½ mile from a full-service grocery store.”⁴ Food access leads to serious health problems, and perpetuates the obesity in the nation. Childhood obesity has tripled over the last 3 decades, and nearly 2/3 of adults are obese.⁵

Native Americans on reservations deal with issues of food disparity as well. However, they face a unique challenge because of the loss of culture, as well as health consequences. Today, Native American diets have changed dramatically, and are worse than that of the general U.S. population, as documented by a recent study. Only 10% of Native Americans have a healthy diet, 62% eat too much fat, and only 21% eat enough

EcoTrust. 25 November 2007. http://www.vividpicture.net/documents/12_Food_Access_in_CA_Today.pdf

² Harris, Keecha Dr. “Community Implications: Food Programs, Policies, and Access Issues.” [Glynwood Center](http://www.glynwood.org/programs/foodsec/Community%20Implications%20Food%20Programs,%20Policies,%20and%20Access%20I.pdf). 25 November 2007.

<http://www.glynwood.org/programs/foodsec/Community%20Implications%20Food%20Programs,%20Policies,%20and%20Access%20I.pdf>

³ Hatfield, Doe and Analisa Gunnell. “Food Access in California Today.”

⁴ Hatfield, Doe and Analisa Gunnell. “Food Access in California Today.”

⁵ Harris, Keecha Dr. “Community Implications: Food Programs, Policies, and Access Issues.”

fruit and vegetables. “Native Americans are also four times more likely to report not having enough to eat than other U.S. households.”⁶ Due to their poor diet and practices, severe health consequences result for Native Americans. Heart disease, diabetes and obesity are all consequences that majority of Native Americans living on reservations face. Obesity is rampant on reservations, as 30% of adults are obese, and children are becoming increasingly more overweight. These rates are associated with high-fat diets and low levels of physical activity, due to their diet and location. Obesity is a major risk factor for type II diabetes and heart disease, the two most serious health problems that Native Americans face. 12% of Native Americans over the age of 19 have type II diabetes as compared to 6% of the general U.S. population, leading to serious health problems such as blindness and amputation, and sometimes even death. However, heart disease is the leading cause of death, and over 60% of both men and women have some of the risk factors to develop it, including high blood pressure and cholesterol, obesity and diabetes.⁷

The cultural aspect of food disparity for Native Americans brings an entirely new level of depth and interest to the subject. Traditional farming practices and foods are sustainable forces in the continuation of historical cultures and communities. “When peoples once sustained by agriculture lose their agricultural traditions, their survival as a culture may also be at risk.”⁸ There are a plethora of organizations in the nation that work toward preserving the culture and traditions of Native Americans, as well as

⁶ Flaminiano Garces, Cristina and Lisa Sutherland. “Diet of, Native Americans.” *National Institutes of Health*. 2007, Advameg, Inc. 25 November 2007. <http://www.fags.org/nutrition/Met-Obe/Native-Americans-Diet-of.html>

⁷ Flaminiano Garces, Cristina and Lisa Sutherland. “Diet of, Native Americans.”

⁸ “Native Seeds/SEARCH: Ancient Seeds for Modern Needs.” Native Seeds/SEARCH. 2005. 25 November 2007. <http://www.nativeseeds.org>

educating them about healthy diets and lifestyles. The Tohono O'odham Community Action (TOCA) is a local grassroots organization based on the main section of the Tohono O'odham Reservation. Their work is dedicated to creating cultural revitalization, community health and sustainable development through community participation and education. Native Seeds/SEARCH is non-profit organization located in Tucson, Arizona that works to protect the native seeds that are slowly working towards extinction. Groups, such as these two, are dedicated to the fight to save the native food system, as well as combat other enormous problems that the Tohono O'odham Native Americans face, including diabetes and lost farming practices.

Methodology and Limitations

The methodology for this paper consists of a variety of research sources. Initially, the research began with secondary research of reading academic and scientific journal articles and books. I read about the history of the Tohono O'odham Nation, the native food system and culture, and what that is today. Furthermore, I researched the diabetes disease; particularly type 2 diabetes that occurs due to poor diet and a lack of exercise. From that basis, I went on to investigate my two organizational case-studies, TOCA and NS/S. I looked at their structures, missions, funding and individual programs. The second part of my methodology consisted of first-hand interviews and research. I conducted interviews with a wide range of people educated and invested in the fight for the survival of native food systems. Some work for TOCA or NS/S, others have scientific backgrounds regarding diabetes, and the rest are involved with federal programs. From the combination of both primary and secondary sources, I was able to compile a

complete understanding of the current establishment of poor nutrition and loss of a native food system, as well as an analysis of my two case-study organizations and a list of differing policy recommendations. The biggest limitation I had for this study is that the Tohono O'odham Reservation and case-study organizations are located in Arizona. Therefore, while I did some informational interviews while visiting Arizona over my winter break, the main interviews for this paper had to be conducted over the phone and through email. Therefore, to continue further with this research, I would like to intern with both organizations and experience first-hand what their work is like. From there, I could analyze more accurately the collaborative issues and programs, as well as understand the native food system by being involved with it instead of just reading about it.

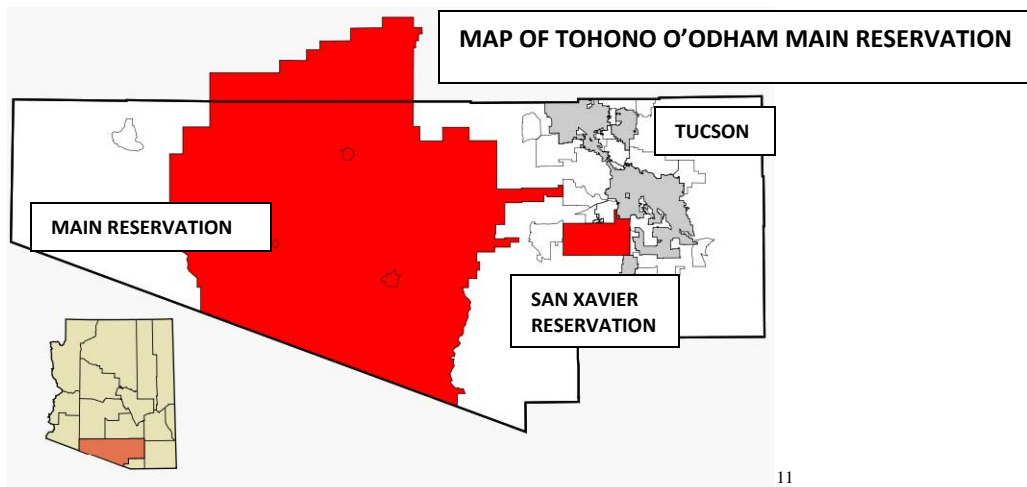
Personal Story

The reason I became interested in focusing on the decline of the native food system and culture for my senior comprehensive project is that I have volunteered with organizations dealing with these issues in the past. I am from Tucson, Arizona and throughout high school and early college I worked with NS/S and ArtsReach, another non-profit organization that work with Tohono O'odham youth to continue the culture of story-telling through creative writing. My experience with NS/S introduced me to the importance of saving the native seeds, and I became increasingly interested in the issues that Native Americans face nationally. ArtsReach was another great volunteer experience, as I was able to see how important culture is to the tribe through the lens of creative writing and story-telling. From there, I was able to put together this

comprehensive research on the major issues the Tohono O'odham face today, and what can be done to change the current systems that exist.

BACKGROUND

The Tohono O’odham (formerly known as Papago) Nation is a large southwestern tribe located in the heart of the Sonoran Desert. Their name literally means “People of the Desert”, which is true to their original and current establishment among the dry and arid land with wide valleys and huge mountain ranges. Comparable to the size of the state of Connecticut, it totals around 2.8 million acres.⁹ The Nation is broken up into four sections, the largest located in Sells, Arizona, approximately sixty miles west of Tucson. Around 18,000 of the tribe’s approximately 24,000 members live in this section, whose boundaries stretch over 90 miles, beginning in Casa Grande, encompassing some of Pinal and Pima Counties, and ending in Mexico. The second largest is located on the San Xavier Mission, known as the “White Dove of the Desert”, housing around 2,000 tribal members. The other two sites, San Lucy District and Florence Village, only hold 304 and 54 members, respectively.¹⁰



⁹ Inter Tribal Council of Arizona, Inc. “Tohono O’odham Nation.” 2003. 2 February 2008. <http://www.itcaonline.com/tribes_tohono.html>

¹⁰ U.S. Census Bureau. “Census 2000 Profile Highlights: Tohono O’odham.” 2 February 2008. <<http://factfinder.census.gov/>>

¹¹ “Tohono O’odham.” NativeWiki. 18 April 2008. <www.nativewiki.org/Tohono_O'odham>

The Tohono O’odham Nation faces many challenges that are typical of any low-income, minority community. According to the 2000 US Census, the per capita income on the entire reservation is around \$3,113 (compared with \$14,000 nationally), which is also the lowest of all reservations in the United States. Approximately 65% are below the poverty line, with an unemployment rate of 62%. The majority of the tribe’s income comes from the three casinos on their land, which has just recently been enacted over the past decade. However, this money cannot cover all the basic needs for the tribal members, resulting in huge numbers of people without working plumbing, telephones or automobiles. They also experience a high drop-out rate for high school, at around 50%. They claim the highest rate of adult-onset diabetes in the world, at more than half of the entire adult population.¹² Due to these extraordinary circumstances, the Nation is experiencing a desperate need for a reestablishment of their traditions and rich culture that is being threatened with extinction.

Culture and Traditions

The culture of the Nation is extremely important for the survival of the tribe. There are many traditions that are still very important, and others that have long been extinct. Their native language, called O’odham, is a strand of an Uto-Aztecan language and is still spoken today. However, the majority of tribal members are fluent in English, and the native tongue is slowly being lost. “The language is not good today. I hear a lot of English with the adults and children. I do not think we realize what is happening – the loss of our language. Even though some of us are still trying hard to keep it going by

¹² Tohono O’odham Community Action. “Wisdom From Our Past Creating Solutions for Our Future.” 2 February 2008. <www.tocaonline.org>

teaching and trying to wake people up... it is not an easy job," says Tohono O'odham tribal elder Danny Lopez.¹³

Basket-weaving is another of the most important traditions for the Tohono O'odham, and can be used as a source of income. The women who still partake in basket-weaving are very proud of their trade, and continue to pass it down to the younger generations. "Every basket is unique. You cannot compare it to others,' [Delphine] Saraficio tells her students who use tools including an awl, a knife, nail clippers, a rock and a hammer, and a bowl with water to soak the grasses."¹⁴ There are also many ceremonies that are performed during various times of the year. For example, the sacred Saguaro Wine Ceremony is an annual event that is struggling to survive. Meant to literally "sing down the rain", this saguaro harvest and wine ceremony helped mark the beginning of a new year. Yet, today, hardly any of the Tohono O'odham members participate in this rite. Lopez, explains that this is due to the assimilation into the "dominant culture", which emphasizes "television, video games, and even drugs, gangs and alcohol."¹⁵

Food alone is an entire culture for the Tohono O'odham Nation, with important ceremonies to be performed even for a single crop. Their native food system is declining, which has been the major factor in the health and social problems for the entire tribe. There are three parts to the traditional food system: Ak Chin farming, harvesting wild foods, and hunting. Ak Chin farming is based on utilizing the flood

¹³ Lopez, Danny. Phone interview. 25 March 2008.

¹⁴ Sanders, David. "Tohono O'odham Celebrate Culture." AZStarNet. 13 December 2006. <<http://www.azstarnet.com/sn/tribes/159269>>

¹⁵ Lopez, Danny. Phone Interview.

waters from the rainy monsoon season at the end of the summer to farm crops that are nutritious and adapted to the hot and short growing season. Then, throughout the entire year, the tribe will harvest the wild foods to be eaten, such as the fruit from cacti, mesquite bean pods, and acorns. Finally, hunting was used as a source of nutrition, with a focus on rabbits, deer, and javelina.¹⁶ All three of these food system elements led to a widely diverse and healthy diet. However, today, this system has been lost to modern conveniences.

Assimilation Grievances and Politics

There are many reasons for the decline of the native food system of the Tohono O'odham Nation. The politics and incorporation into the modern world is enormously complex. For example, there are several federal programs that led to a shift from culture and traditions. The work projects for surrounding cotton farms took entire families away for months at a time, which led to a dramatic decline of labor for their own crops and ceremonies. Federal food programs led to the beginning of the current dependence on processed foods from commercial retailers.¹⁷ "In the past, we planted, woke up early, and did all the work. Now, we buy our food, and drive to get it. We don't use the horse and buggy anymore. It's all about modern conveniences. We are trying to be like the other people, by living the easy life and not working hard like our ancestors used to do," comments Lopez.¹⁸ The Food Distribution Program on Indian Reservations (FDPIR) was enacted underneath the Federal Food Stamp program in 1977. Eligible

¹⁶ Tohono O'odham Community Action. "O'odham Ha'icu Ha-Hugic Duakog: Tohono O'odham Food, Fitness & Wellness Initiative Planning Phase Proposal to the W.K. Kellogg Foundation." 20 March 2008.

¹⁷ Tohono O'odham Community Action. "O'odham Ha'icu Ha-Hugic Duakog: Tohono O'odham Food, Fitness & Wellness Initiative Planning Phase Proposal to the W.K. Kellogg Foundation."

¹⁸ Lopez, Danny. Phone Interview.

Native Americans living on reservations would receive monthly food packages to supplement their inability to produce or buy their own food. However, there was never any concern through the program to address the specific dietary needs of the Native Americans, and therefore the food was especially bad for them.¹⁹

Water is another major cause for the declining food system. Besides the global environmental issues surrounding water, the government's attempt to control floods led to an eventual lack of water sources near the reservation.²⁰ Historically, the Tohono O'odham Native Americans had developed highly strong coping skills for the absence of abundant water. Due to the fact that drought was a common occurrence, flexibility was essential to their survival. When their large varieties of crops would fail due to lack of sufficient rainfall, the entire tribe would pack up and move to the areas with flowing rivers. Then, once the drought had passed, the Tohono O'odham could move back to their desert dwellings and replant their seeds.²¹ This pseudo-nomadic activity led the tribe to be known as the "no-village" or "two-village" people. The proximity of the Gila River and the Santa Cruz River were the two most ideal spots for the tribe's refuge during the drought seasons.²² However, the introduction of modernized cultures in the twentieth century brought about new challenges, as the Tohono O'odham were confined to the space of the reservation and had to change their traditional ways of living.

¹⁹ Economic Research Service/U.S. Department of Agriculture. "Food Distribution Program on Indian Reservations." 297-303. < <http://www.ers.usda.gov/publications/fanrr19-3/fanrr19-3m.pdf>>

²⁰ Tohono O'odham Community Action. "O'odham Ha'icu Ha-Hugic Duakog: Tohono O'odham Food, Fitness & Wellness Initiative Planning Phase Proposal to the W.K. Kellogg Foundation."

²¹ Brown, F. Lee and Helen M. Ingram. Water and Poverty in the Southwest. The University of Arizona Press: Tucson. 1987.

²² Brown, F. Lee and Helen M. Ingram. Water and Poverty in the Southwest.

As a way to appease the Sonoran Desert Native American tribes forced to live on their reservations, the Bureau of Indian Affairs (then known as the Indian Service) constructed some federal programs to aid in the times of water shortage. Wells were dug throughout the reservations, in order to take advantage of the “abundant” groundwater.²³ However, when the surrounding counties’ populations grew and jeopardized the majority of the Tohono O’odham’s groundwater, the federal department turned to import water from the Gila River. The best example of this program was in the San Xavier Reservation, as it set up a pattern for water policy that is still followed today. The Santa Cruz River surfaced in certain pockets which formed springs. One was in the San Xavier Reservation, called Punta de Aqua.²⁴ The Indian Service decided to utilize these pockets of water, and carved acequias (ditches) into the river channel to “intercept the shallow water-table and thus provide a regular water supply in an area where surface supplies were unpredictable and normally inadequate”.²⁵ While the intentions of this act were good, there was not enough planning or follow-up which lead to several consequences. There was no attempt to protect the ditches from erosion, and therefore they “wreaked havoc on the landscape when the river swelled”.²⁶ These channels also affected the underground water supply, as the water table dropped to the deeply eroded level of the channel, which subsequently stopped all water flow to the other springs. Finally, the ditches also accelerated river runoff, resulting in less water infiltrating the underlying aquifer. “By

²³ Brown, F. Lee and Helen M. Ingram. [Water and Poverty in the Southwest.](#)

²⁴ Brown, F. Lee and Helen M. Ingram. [Water and Poverty in the Southwest.](#)

²⁵ Brown, F. Lee and Helen M. Ingram. [Water and Poverty in the Southwest.](#)

²⁶ Brown, F. Lee and Helen M. Ingram. [Water and Poverty in the Southwest.](#)

1912, neither the ephemeral surface flow nor the subterranean stream of the Santa Cruz provided sufficient water to irrigate fields of the growing town of Tucson".²⁷ However, when the non-Native American citizens of Tucson realized this, they were able to monopolize the aquifer by digging multiple wells. The Tohono O'odham were forced to turn to the Indian Service for help with wells because they had insufficient funds, but there were not enough dug and were poorly maintained.²⁸ The water policies that were enacted to help aid the Native American groups and surrounding towns during times of drought actually backfired in the end. By forcing the Tohono O'odham to stay secluded on their reservation land and change their way of life, they had to find water elsewhere. When the channels and ditches were dug to dominate the low amount of stream and ground water, the subsequent erosion of the landscape and flow of the river created severe consequences to the native crops and natural systems of water. The many hindrances and restrictions that were placed upon the Native Americans at the turn of the century are still problematic today. For example, the water issue and policies alone have greatly affected the larger webbing of the Tohono O'odham's native culture, such that major health consequences (diabetes) and a loss of the nomadic traditions are now the prevalent ways of life.

Current Work on the Depleting Food System and Diabetes

All of the above reasons are huge factors regarding the decline of native traditions and food culture, which is beginning to be taken seriously by various groups. At a "Principles of Food Sovereignty Forum" held in February 2008, several groups got

²⁷ Brown, F. Lee and Helen M. Ingram. Water and Poverty in the Southwest.

²⁸ Brown, F. Lee and Helen M. Ingram. Water and Poverty in the Southwest.

together to discuss the food system issue being felt by tribes nationwide. “We recognize our ancient values of food and seed sustainability and the systems of trade and commerce with each other and find it necessary to exercise our sovereignty and self-determination with regards to the protection of our cultural resources.”²⁹ This forum addressed some innovative ideas that affect all tribes nationally. However, this was brought forth from the “Forum for Food Sovereignty” held in Mali the year before. Bringing together 500 delegates from over 80 countries, the conference addressed important issues that are affecting the native food systems internationally. The most recent food sovereignty forum held in New Mexico drew from important ideas garnered through the “Declaration of Nyeleni”, created in Mali. The views addressed in the declaration are pushing for the empowerment and rights of all cultures to have access to their native foods through ecologically sound methods. Therefore, when the U.S. forum was held, not only did they affirm these viewpoints, but also directed them more specifically towards the Native American struggle. Forums, both national and international, that address the loss of native food systems is imperative to change the current policies and gain more public awareness. With this recent push for a renewed culture of native tribes, the traditional food system that has been so ravaged over time may have a chance to survive.

The push for renewed culture of native tribes is an important fight. However, it is also important to recognize the power of crop genetic diversity, and how it is tied into the native food system that is slowly becoming extinct. With nearly two-thirds of the

²⁹ Tohono O’odham Community Action. “Some Principles of Native Food Sovereignty.” Principles of Food Sovereignty Forum at Taos, New Mexico. 6 February 2008.

distinctive seeds from America lost forever, the diversity of crops is eroding at an exponential rate. These seeds do not only bring about diversity in food, but also develop natural resistances to pests and disease, something that genetically modified crops cannot claim. In fact, studies have found that GM (genetically modified) foods have severe health consequences. In the groundbreaking book, Seeds of Deception, Jeffrey Smith catalogues the political scene and rising dangers of GM foods. “The Washington Post reported that laboratory mice, usually happy to munch on tomatoes, turned their noses up at the genetically modified FlavrSavr tomato...The mice were eventually force fed the tomato through gastric tubes and stomach washes. Several developed stomach lesions; seven of forty died within two weeks. The tomato was approved without further tests.”³⁰ Other such examples are rampant in the book, and yet, GM seeds are still supported by major companies, such as Monsanto, and the current Bush administration. Even after numerous scientific studies explaining the dangers of GM foods, in 2003 President Bush launched an “Initiative to End Hunger in Africa” using genetically modified foods and claiming the “unfounded, unscientific fears” of these foods as thwarting recovery efforts.³¹ The impact of the genetic erosion and GM seeds is an enormous issue that does not receive nearly enough attention. The late Jack Harlan, world renowned plant collector and author of Crops and Man, wrote on this very impact. “These [genetically diverse seed] resources stand between us and catastrophic starvation on a scale we cannot imagine. In a very real sense, the future of the human race rides on these materials. The line between abundance and disaster is becoming

³⁰ Smith, Jeffrey. Seeds of Deception. Yes! Books: New York. September 2003.

³¹ Smith, Jeffrey. Seeds of Deception.

thinner and thinner, and the public is unaware and unconcerned. Must we wait for disaster to be real before we are heard? Will people listen only after it is too late?”³²

The health consequences that Native Americans face today, due in large part to the lack of a native food system, results in severe problems. Diabetes is the main outcome for tribal members, leading to devastating problems, including amputation (four times higher rate for Native Americans than the general population), blindness (six times higher rate), kidney and heart disease, and premature death. Diabetes is a degenerative disease that affects many organs and bodily systems. Mainly, it is a disease that “affects the body’s ability to produce or respond to insulin, a hormone that allows blood glucose (sugar) to enter the cells of the body and be used for energy...It is a chronic disease that has no cure.”³³ Type 2 diabetes (also known as adult-onset diabetes) is developed due to a family history of the disease, obesity, high blood pressure or cholesterol levels, low physical activity, or belonging to an ethnic group such as American Indians or Alaska Natives. Native Americans are 2.2 times more likely to develop diabetes than non-Hispanic whites.³⁴ According to the National Institute for Diabetes and Digestive and Kidney Diseases, the “thrifty gene” theory explains why certain ethnic groups, such as Native Americans, are more prone to diabetes. This theory, proposed by geneticist James Neel in 1962, suggests that these groups inherited a gene from their ancestors to use food more effectively during “feast and famine”

³² Hammond, Chef Robert. “Saving Seed – A Gift That Keeps on Giving.” Chef’s Corner: Celebrating America’s Food Traditions. 11 March 2008. <<http://chefroberthammond.blogspot.com/2008/03/saving-seed-gift-that-keeps-on-giving.html>>

³³ Kaliseji, Vtla. “Native Americans and Diabetes – The Facts.” Native American Diabetes Resources. 14 March 2008. <<http://vtlakaliseji.tripod.com/Vtlakaliseji/id2.html>>

³⁴ National Diabetes Education Program. “The Diabetes Epidemic Among American Indians and Alaska Natives.” November 2005. <<http://www.ndep.nih.gov>>

times. “Neel said that to adapt to these extreme changes in caloric needs, these people developed a thrifty gene that allowed them to store fat during times of plenty so that they would not starve during times of famine.”³⁵ However, due to the fact that this gene is no longer as necessary for survival because of modern conveniences, it leads to a higher susceptibility of obesity and diabetes.³⁶ Catching the early symptoms of diabetes is imperative for prevention, as it cannot be cured once it has fully developed. Some of the early signs for type 2 diabetes include “frequent urination, blurry vision, irritability, extreme hunger, excessive thirst, unusual weight loss and increased fatigue.”³⁷ The importance of realizing the symptoms of diabetes early is vital for treatment of the disease, and can sometimes even prevent it if it is still early enough. This can immensely improve the future of the patient, as well as help them live a relatively normal life.

As a way to respond to the rapidly growing problem of diabetes among Native American groups, there have been numerous treatment and prevention programs launched by various entities. There is a wide range of implementation and success between them all, and some have been very successful in their outreach. One such example is the U.S. Department of Health and Human Services (HHS) National Diabetes Education Program (NDEP). In 2004, they initiated a national campaign called “We Have the Power to Prevent Diabetes” through the Chickasaw Nation Health System’s Diabetes Care Center in Oklahoma. Through the promotion of empowered American Indians and Alaskan Natives fighting against diabetes, they aim to reach out to millions of other

³⁵ Marchand, Lorraine H. “Obesity and Diabetes.” National Diabetes Information Clearinghouse. 27 March 2008. <<http://diabetes.niddk.nih.gov/dm/pubs/pima/obesity/obesity.htm>>

³⁶ Kaliseji, Vtla. “Native Americans and Diabetes – The Facts.”

³⁷ “Recognizing Early Symptoms Diabetes.” Natural Cure for Diabetes. 13 March 2008. <<http://12423.blogspot.com/2008/03/recognizing-early-symptoms-diabetes.html>>

susceptible people and show them how important healthy lifestyles can be. The method of utilizing real-life testimonials from those who have made lifestyle changes to prevent diabetes is used to encourage others to take the steps and realize that diabetes does not have to be a reality. Dr. Elias Zerhouni, Director of the National Institutes of Health (NIH) comments on the importance of campaigns such as this: "If we are going to make a difference, we need to reach people where they live, work, and play, with information that is consumer-friendly and practical based on the proven science of diabetes prevention".³⁸ This is an important point because grassroots campaigns and organizing is a vital tool to reach out to the millions of Native Americans who are unaware of the fact that diabetes can be prevented, and it is not something they have to learn to live with. Other national campaigns work with community groups as well to educate the masses and push them to make healthy changes in their lives.

There have been many scientific studies done on the prevalence of diabetes among Native American groups. These studies are vital to those groups and government entities that work toward the future prevention of diabetes for Native Americans throughout the country. One such study, "Effects of Traditional and Western Environments on Prevalence of Type 2 Diabetes in Pima Indians in Mexico and the U.S., was conducted in 2006. The research methods involved applying oral glucose tolerance tests to adult Pima Indians and non-Pima groups in the Sierra Madre mountains of Mexico, as well as looking at their obesity, physical activity and other risk factor levels. These same methods were used on adult Pima Indians living in Arizona, and the results

³⁸ Berry, TaWanna. "Millions of American Indians and Alaska Natives at Increased Risk for Type 2 Diabetes." National Diabetes Education Program. 10 August 2004. <<http://www.ndep.nih.gov>>

from the different countries were compared. What was found was that the prevalence of type 2 diabetes in Mexican Pima Indians (6.9%) was less than one-fifth that in the U.S. Pima Indians (38%). Also, Mexican Pima Indians had a similar percentage to that of the non-Pima population in Mexico (2.6%). Obesity was found to be much higher in the U.S. Pima Indians than both Mexican groups, while the physical activity levels were higher with the Mexican populations. The importance of this studies conclusions is that diabetes is largely preventable. “The much lower prevalence of type 2 diabetes and obesity in the Pima Indians in Mexico than in the U.S. indicates that even in populations genetically prone to these conditions, their development is determined mostly by environmental circumstances”.³⁹ Because the Pima Indians in Mexico had a significantly lower prevalence of diabetes than their U.S. counterparts, low levels of obesity and high amounts of physical activity are proven to be preventative measures for the disease. Therefore, beneficial lifestyle changes, such as workout programs and healthy eating, by Native American groups across the country will significantly help decrease the severity of the consequences of diabetes, as well as aid in the prevention for future generations of adults.

Lifestyle intervention programs are essential for the survival of Native Americans. The onslaught of this disease is killing huge amounts of tribal members, which can be prevented. Another study, “Reduction in the Incidence of Type 2 Diabetes with Lifestyle Intervention or Metformin”, was conducted in 2002 by the Diabetes

³⁹ Schulz, Leslie O., Bennett, Peter H., et al. “Effects of Traditional and Western Environments on Prevalence of Type 2 Diabetes in Pima Indians in Mexico and the U.S.” *Diabetes Care*. Vol 29, Number 8, August 2006.

Prevention Program Research Group. The research methods consisted of assigning 3,234 nondiabetic persons with elevated fasting and post-load glucose concentrations, inducing diabetes-like symptoms. Then, they were introduced to either a placebo, metformin (treatment drug), or a lifestyle-modification program. Over a period of almost three years, the results of the study were as follows: lifestyle-intervention programs reduced the incidence of diabetes by 58%, while metformin only reduced diabetes by 31%. This study concluded that lifestyle changes are imperative to diabetes reduction and prevention, and are more successful than medicine treatment alone.⁴⁰

Over the past few decades, research has been conducted proving that native foods, such as mesquite beans, help regulate blood sugar naturally. However, the push to a westernized food system, mixed with the “thrifty gene”, overwhelmed the native metabolism, causing obesity and higher rates of diabetes. With the results of these studies, two attributes were found in native foods to help reduce the incidence and severity of diabetes. “First, the soluble fiber, tannins and inulin in one group of traditional foods (which includes mesquite bean pods, acorns and tepary beans) helps reduce blood sugar levels, slow sugar absorption rates, and improve insulin production and sensitivity...Second, a complimentary group of traditional foods (including prickly pear fruits and pads, cholla cactus buds, chia seeds and mesquite bean pods) contain mucilaginous polysaccharides gums that slow the digestion and absorption of sugary foods.”⁴¹ This proves that the loss of a native food system is a huge reason for the

⁴⁰ Knowler, William C., Barrett-Connor, Elizabeth, et al. “Reduction in the Incidence of Type 2 Diabetes with Lifestyle Intervention or Metformin.” *The New England Journal of Medicine*. Vol 346, No. 6, 7 February 2002.

⁴¹ Tohono O’odham Community Action. “O’odham Ha’icu Ha-Hugic Duakog: Tohono O’odham Food,

increase of diabetes among Native Americans, and the main reason for direct action and outreach is to educate tribal members to return to their old ways in a modern setting.

TOHONO O’ODHAM COMMUNITY ACTION

The Tohono O’odham Community Action (TOCA) was founded in 1996 as a community-based non-profit located in Sells, Arizona on the Tohono O’odham Reservation’s largest section. Originally founded as a response to conventional forms of diabetes prevention and treatment, TOCA worked to redevelop a local food system based on community involvement and cultural revitalization. Instead of the federal programs that used generic prevention and treatment facilities, the group emphasized community empowerment through “the promotion of healthy traditional foods, physical fitness and cultural practices”.⁴² TOCA’s main goal to create a healthy, culturally vital and sustainable Tohono O’odham Nation is accomplished through the four guiding principles used for decisions on programs and strategies: O’odham Himdag (wisdom from our past creating solutions for our future), Community Assets (see our resources, not just our needs), Encourage Community Self-sufficiency, and Context is Crucial (strengthening the material roots of O’odham culture).⁴³ The first principle, O’odham Himdag, translates to “Desert People’s Way” and is used as a guide for TOCA to focus on cultural heritage and traditions when developing solutions for the problems in the community. The second principle, Community Assets, encourages them to look at the good aspects of the community that are already there, instead of just focusing on the issues and importing solutions from outside the reservation. The third, Self-Sufficiency, attempts to return to a time before outside social programs created the dependent

⁴² Tohono O’odham Community Action. “O’odham Ha’icu Ha-Hugic Duakog: Tohono O’odham Food, Fitness & Wellness Initiative Planning Phase Proposal to the W.K. Kellogg Foundation.”

⁴³ Tohono O’odham Community Action. “O’odham Ha’icu Ha-Hugic Duakog: Tohono O’odham Food, Fitness & Wellness Initiative Planning Phase Proposal to the W.K. Kellogg Foundation.”

relationships that now exist in order to re-empower the residents of the community. And finally the fourth principle, Context is Crucial, looks at the context in which cultural activities are being preserved, and ensures that the traditional foundations in which these practices were made are also maintained.

As a community-based organization, TOCA is completely run by Native Americans from the Tohono O'odham Nation, with the exception of one of the co-founders, Tristan Reader. TOCA is comprised of an eight-person staff (including Reader and other co-founder Terrol Johnson), involved in varying aspects of programs and overall management of the group, with the addition of a part-time bookkeeper for finances. Every aspect of the organization, including planning, development and implementation of programs, is overseen by its co-founders, Reader and Johnson, in consultation with the Board of Directors. Because the two founders are in charge of everything TOCA does, it can seem to be contradictory to being a community-based organization, especially because Reader is non-native. However, as with all professional groups, there must be people to make last-minute decisions and be the overall leaders, as long as the real needs and desires of the community are expressed and implemented. "The biggest part we do for TOCA is to focus on the community and to develop the directions of programs that define their needs," says Reader.⁴⁴

TOCA receives a majority of its funding through grants and contracts, all administered internally. The largest funder is through the Kellogg Foundation, under their Food Systems and Rural Development grants program. With a three-year,

⁴⁴ Reader, Tristan. Phone Interview. 6 March 2008.

\$475,000 grant, TOCA has been able to expand their production and consumption of native foods.

From their mission to develop culturally significant solutions to the problems facing their community, TOCA has four key program areas: Basketweavers Organization (TOBO), Community Arts and Culture Program, Youth/Elder Outreach Program, and Community Food System. Furthermore, TOCA's recent collaborations with other organizations has led to other various projects, including the Water is Sacred Campaign, School and Elderly Gardens, Traditional Food Harvest Camps, and Traditional Games Festival. TOBO (see Appendix A) is one of TOCA's most successful programs, because basket-weaving is still an important tradition for the tribe. With over 250 weavers, the program includes classes to teach younger generations the proper technique, and a cooperative to sell the baskets at markets and fairs.⁴⁵ The cooperative is really helpful for the entire tribe as a source of income. For decades, the Tohono O'odham weavers were dependent on reservation visitors to buy their work, with only a 5% - 25% profit. Now, with the creation of the cooperative, the weavers are able to reach new markets with 75% of the profits going back to the women. Similarly, TOCA's Art and Culture Program focuses on the "O'odham Himdag", or a focus on the past by ensuring that the traditions and ceremonies are not lost to modern times. There are many aspects to this program, including the Rain Ceremony Revitalization, which is one of the most important ceremonies to the tribe. The program works to get everyone, but especially the younger children, invested in keeping it alive. Other aspects of the program are the

⁴⁵ Tohono O'odham Community Action. "O'odham Ha'icu Ha-Hugic Duakog: Tohono O'odham Food, Fitness & Wellness Initiative Planning Phase Proposal to the W.K. Kellogg Foundation."

Traditional Singing and Dance Group, Traditional Storytelling Events, and the Culture and Leadership Camp for Youth. TOCA feels that the youth are the most important group to reach out to, because they are key in the cultural revitalization of the tribe. Due to the many outside, modern influences and a lack of solid traditions of the tribe, many of the children and teenagers are unsure of what they stand for or what their identity is. Therefore, the Youth/Elder Outreach Initiative Program works to give the younger generation a sense of tribal identity by spending time with their elders. Through this, they incorporate the importance of the Tohono O'odham culture and ceremonies, and pass down the O'odham way of life to the future community leaders. Finally, TOCA's Community Food System is dedicated to create a sustainable food system on the reservation, leading to healthier lifestyles and a return to the old ways of farming. This program focuses on five key areas for their food system: food production, food processing, food distribution, education, and culture. Through increased education and knowledge of the connection between traditional foods, physical fitness, and cultural survival, the program seeks to also improve economic development and reduce the incidence of type 2 diabetes. A return to the traditional methods of farming native foods has a multitude of benefits that are necessary for the Tohono O'odham Nation.⁴⁶

Currently, the group is putting together the Food, Fitness and Wellness Initiative with the help of many other organizations. Their main goal is aimed at developing a new vision of a healthy and culturally vital community. "Bringing together various sectors of the community, including the non-profit, Federal, Tribal, educational

⁴⁶ Tohono O'odham Community Action. "Wisdom From Our Past Creating Solutions for Our Future." 2 February 2008. www.tocaonline.org

and health providers, the project aims to develop strong new links between the food system, fitness promotion, the built environment and health care.”⁴⁷ This program works to complete a full circle of change for the tribe in all areas that are negatively affecting the lives of its members. By working in a coalition with other affiliated groups, such as Indian Health Services, Tohono O’odham Nation Department of Health and Human Services, Tohono O’odham Community College, and KOHN 91.9 FM, outside participation and interest in the needs of the Nation is increased. The ultimate goal of the Initiative is to create a community where all members have access to traditional and native foods, physical fitness facilities, educational and cultural programs, and health facilities for diabetes patients that also work to prevent future occurrences.

⁴⁷ Tohono O’odham Community Action. “O’odham Ha’icu Ha-Hugic Duakog: Tohono O’odham Food, Fitness & Wellness Initiative Planning Phase Proposal to the W.K. Kellogg Foundation.”

NATIVE SEEDS/SEARCH

Native Seeds/SEARCH (Southwestern Endangered Aridland Resources Clearing House) was founded in 1983 by Barney Burns, Mahina Drees, Gary Nabhan and Karen Reichhardt. Their original mission, which remains the same today, is “to conserve, distribute, and document the adapted and diverse varieties of agricultural seeds, their wild relatives, and the role these seeds play in cultures of the American Southwest and Northwest Mexico”.⁴⁸ Located in Tucson, Arizona, Native Seeds/SEARCH (NS/S) is a local non-profit organization that sells their seeds and crafts worldwide. Over the past 25 years, the organization has grown exponentially. They started out with 47 seeds in their seed bank, which was gathered by the four founders travelling to various indigenous villages looking for the native seeds that were slowly becoming extinct. “When we were first searching for this seed, we would go to villages and find one little lady that might have one little can of seed and that was all that was left of a certain variety,” said Reichhardt.⁴⁹ Today, however, they have close to 2,000 seeds in their seed bank, located at the Sylvester House in Tucson. They have an office downtown, with a retail store around the corner where people can walk in to buy seeds, handmade Native American crafts made by the Tarahumara Indians, foods, and other merchandise. NS/S also has a conservation farm where the seeds are grown, located in Patagonia, Arizona, which is about sixty miles south of Tucson. Through research, seed distribution to gardeners and farmers worldwide, and community outreach, NS/S works to protect

⁴⁸ Native Seeds/SEARCH. “Ancient Seeds for Modern Needs.” 25 February 2008. <<http://www.nativeseeds.org>>

⁴⁹ Peel, Diana. “Native Seeds/SEARCH Founder Tribute Video.” 6 April 2008.

biodiversity and preserve cultural traditions and diversity. “Both are essential in connecting the past to the future”.⁵⁰

NS/S is a relatively small non-profit organization, with a staff of only twenty people. There are many roles to be filled due to the amount of customers they have worldwide, as well as the many events and programs they conduct. They also have a Board of Directors, which has twelve members and four officers, which include two of the original founders. The roles of the staff and board of directors are similar to other non-profit organizations, as the board makes final or important decisions regarding the future of the group, and the staff runs the day to day activities and events. Volunteers make up a large number of the organization, and play a vital role in insuring that the immense work of NS/S gets accomplished. Without volunteers there to help package seeds, run events or aid in running the retail store, the organization would not be able to reach as many people as they do. Members are also essential to NS/S. With almost 4,600 members, and a catalog mailing list of over 20,000 families, their dues help contribute to 32% of the organization’s funding. Membership is open to anyone, and Native Americans living in the greater Southwest may join free and receive seeds at no charge. Annual dues range from the squash level (\$25) to the sunflower level (\$100).⁵¹

NS/S gets money for their work from other places besides membership dues. Foundation grants total 28% of their funding sources, totaling around \$340,000. Sales from seeds and other products bring in about 37% of their funding, which is done at their Tucson store and through online purchases. About 75% of all their funding goes

⁵⁰ Native Seeds/SEARCH. “Ancient Seeds for Modern Needs.” 25 February 2008.

⁵¹ Native Seeds/SEARCH. “Ancient Seeds for Modern Needs.” 25 February 2008.

toward the conservation efforts of the native seeds. The other 25% goes toward office administration, fundraising and membership.⁵²

The NS/S Seed Bank (see Appendix B) utilizes two forms of conservation, ex-situ and in-situ. Ex-situ involves conserving samples of crop seeds under frozen conditions, where they can remain viable for long periods of time. In-situ requires the support and encouragement of the relationship between people and plants through the development of new crop varieties through traditional methods. The seed bank serves as a repository for the seeds where they can be guarded against extinction. Housing almost 2,000 seeds used for food, fiber and dye, with over half of the seeds comprised of the “Three Sisters” (corn, bean and squash).⁵³ The regeneration of seeds involves taking ten-year old frozen seeds, growing them out at the Patagonia farm, and replacing them in the freezer with new seeds. This process has two challenges to face, which are maintaining genetic purity and the integrity of each accession. Genetic purity is maintained through the prevention of cross-pollination between the different varieties of a crop. This is accomplished through correct labeling of the seeds and clean equipment. Genetic integrity, or the specific combination of genes and their frequency, is more difficult to maintain. Regeneration and appropriate sampling protocols, such as sampling many seeds from the same parents, are utilized to maximize the genetic integrity.⁵⁴ The Patagonia Conservation Farm (see Appendix B) opened in December of 1997. The sixty acres of rich flood plain fields is where the regeneration process of

⁵² Native Seeds/SEARCH. “2006 Annual Report.” September 2006. <<http://www.nativeseeds.org>>

⁵³ Native Seeds/SEARCH. “Ancient Seeds for Modern Needs.”

⁵⁴ Native Seeds/SEARCH. “Ancient Seeds for Modern Needs.”

growing out the frozen seeds takes place. A typical season consists of 200-350 seed types on around fifteen acres. Other acres are used for growing out crops for events or specific projects, such as stock for the Sierra Madre Project. The remaining area on the fields is covered cropped with cereal/legume mixes that add nutrients and organic matter to the soil.⁵⁵

There are a variety of programs and events that NS/S put on annually to help fundraise and continue their conservation work. One new development is The Gardner's Network program, which recently became available online. This allows for interested gardeners to sign up and test the NS/S crops, order seeds, and review photographs of how to properly photo-document test crops. As of 2006, forty gardeners were involved in the program.⁵⁶ The Adopt-a-Crop program began in 1997 when the Patagonia Conservation Farm was purchased. The sixty acres allow for the group to plant the seeds that are the most at-risk for going extinct due to old age. This program allows for members to literally adopt-a-crop that directly supports the native plants in the field. There are five crops to choose from, including Magdalena Big Cheese (type of butternut squash), Navajo Grey Hubbard (blue-grey squash), Cochiti Mix (mix of honeydew and yellow-green sweet melon), Chimayo Chile (one of the few New Mexican chiles with native traits), and Wenks Yellow Hots Chile (another New Mexican chile). The minimum donation for a crop is \$50, but there are no limits. This allows for someone to be directly involved in where their money goes, and ensures that the crops that are in danger of extinction can survive and produce more seeds. The Sierra Madre Project

⁵⁵ Native Seeds/SEARCH. "Ancient Seeds for Modern Needs."

⁵⁶ Native Seeds/SEARCH. "2006 Annual Report."

continues to support traditional farming practices of the Tarahumara Indians in Northern Mexico. NS/S works with this group to ensure that they can continue their cultural practices, even in light of drought or economic problems. Through seed money, terracing of mountainous landscape to prevent soil erosion, and installation of water harvesting systems, NS/S has worked with five villages to protect their native ways.⁵⁷

The events that are put on by NS/S can be on a large scale and bring a lot of publicity and support to the organization. Flavors of the Desert is one of the most important events of the year for NS/S, as it brings in guests and sponsors to donate money for the continued support of seed conservation. Held annually in April, this event celebrates the community, traditional foods and the commitment to the work. In 2006, more than \$57,000 was raised from the one evening alone. San Juan's Day is another annual event, but is not for fundraising. Instead, it is a blessing of the fields and crops at the Patagonia Farm, usually conducted by Danny Lopez, a Tohono O'odham elder. This allows for members and friends of NS/S to tour the farm, and also take part in a traditional Native American ceremony. The Home Garden Tour brings interested people and members to a handful of home gardens around Tucson, featuring a wide variety of plants and foods planted by the native seeds. This event allows for everyone to get a sense of the community and understand the methods used to plant these seeds at home.⁵⁸

NS/S does a lot of work to conserve the traditional seeds of native crops. Suzanne Nelson, Director of Conservation, states that the preservation of the seeds is

⁵⁷ Native Seeds/SEARCH. "2006 Annual Report."

⁵⁸ Native Seeds/SEARCH. "2006 Annual Report."

both for the genetic value for plant breeders globally, but also for their value to communities that utilize them. Their success has been widespread and they are providing seeds to growers worldwide. However, founder Gary Nabhan thinks the value goes farther than that. “What Native Seeds/SEARCH has accomplished is the building of a community around seeds and sustainable agriculture that probably didn’t exist before...it’s not just that thousands of people are growing the seeds, but thousands of people are conversing with one another about the seeds, sharing their stories and sharing meals that the seeds have brought to their tables”.⁵⁹

⁵⁹ Peel, Diana. “Native Seeds/SEARCH Founder Tribute Video.”

ANALYSIS OF TOCA AND NS/S

The two organizations, Tohono O’odham Community Action and Native Seeds/SEARCH, are both integral to the fight for saving the native food system and culture of Native Americans in the Southwest. While TOCA works for their tribe alone, all of their work has the potential to be useful for other native groups nationwide. NS/S is not affiliated with a particular Native American tribe, but work with the seeds and culture of the native food system, which is applicable on a large-scale level. Each organization has their own successes and challenges which are unique to their individual missions and goals. Yet, there is a definite overlap in their goals for the betterment of the native food system, which could lead to a strong working relationship or coalition building. As of today, however, their relationship is weak and competitive which only hinders their capability to make real change.

At the Food Sovereignty Forum, one of the principles written by the groups, including TOCA, was that “work between Native communities and non-Native organizations and individuals requires true collaboration based upon honesty, equality and engagement”.⁶⁰ This means that they wish for the Native community to be fully involved in decisions regarding projects about them, instead of being brought into projects that were developed for them by people who do not fully understand the needs of the community. This principle is part of TOCA’s mission as a grassroots-based organization as they work *with* the Tohono O’odham Nation, instead of *on behalf* of them. This is one of the most important issues to raise when policies and programs are

⁶⁰ Tohono O’odham Community Action. “Some Principles of Native Food Sovereignty.”

created to help Native American tribes nationally. Native Americans must be included in the development process, as they are the ones who know best what the needs are of their tribe. Just as in all community-based organizations, TOCA works to have their voice heard in a non-Native political world. Yet, this is also a main cause for the deteriorating relationship with NS/S.

Cultural Ties

Both organizations have done impressive work spanning many areas that affect the Native communities of the Southwest. The work of NS/S that draws the most positive attention is their seed bank. The amount in which it has grown over the past twenty-five years is astronomical, and they have been able to reach more and more people worldwide. With almost 2,000 seeds in stock and crops constantly grown at their conservation farm, NS/S is truly helping ensure that many varieties of native seeds do not become extinct. Elder Danny Lopez agrees that NS/S's seed bank is really making a difference, especially because of their commitment to give away free seeds to Native American tribes.⁶¹ TOCA's work also receives much acclaim, mostly regarding their dedication to diabetes prevention. Through health conferences, workshops, trainings, forums and cultural awareness activities, TOCA addresses all the realms of diabetes and its effect on the Native American lifestyle and culture. Native American Coordinator for NS/S, Alex Sando, explains that TOCA is successful for initiating such programs, but it is still up to the people on the reservations to follow through with healthier lifestyles that

⁶¹ Lopez, Danny. Phone Interview.

include exercise and better eating.⁶²

Obstacles

Each organization also has their own challenges to overcome and improvements to make. There is one apparent area for improvement with NS/S, and that is community outreach. While they are not affiliated with any one particular Native American tribe, their work still very much influences and protects the native food system. Due to this, NS/S should continue their conservation effort, with more focused attention on the groups who benefit the most from it. Suzanne Nelson, Director of Conservation, agrees that community involvement is a definite area of improvement. "I hope that the next step for NS/S involves more interaction with communities regarding conserving crop genetic resources and sustainable agriculture, and more participation at the international level in issues related to access to, and utilization of, crop genetic resources".⁶³ However, Nelson's idea of community involvement will not become a reality unless there is a different kind of community outreach first. Lopez sees that NS/S needs to improve their community impact, as that area is lacking. When NS/S was first founded, they used to go to the community to show people how to plant the seeds, and now that aspect is gone.⁶⁴ In order for Nelson's idea of educating the wider community about crop genetic resources and sustainable agriculture, there must first be a push to empower the Native communities and educate them about the food system first. Then, once the impact of the power of native foods is established, NS/S can move on to

⁶² Sando, Alex. Email Interview. 20 March 2008.

⁶³ Nelson, Suzanne. Email Interview. 25 March 2008.

⁶⁴ Lopez, Danny. Phone Interview.

greater challenges and educational topics.

TOCA also has many improvements to make in order to make a larger impact on the Tohono O’odham tribe. Their grassroots-based approach to community organizing is important to continue, as they are one of only groups working with the reservation instead of for them. However, in order for tangible results to happen from their work, it must be done on a bigger level. Tristan Reader, co-founder of TOCA, understands the need for the impact that national policies and programs inherently have. “From the beginning, we were grassroots-based, but that makes it hard because so often people focus on individual behavior when there must be systemic change”.⁶⁵ Lopez comments on this further, critiquing TOCA’s outreach. The reservation is so vast, says Lopez, which makes it difficult to garner a lot of attention regarding education about the food system. He sees the method for improvement as through constant repetition of the importance of the native food system through interesting programs.⁶⁶

Strategy Differences: Seeds vs. Organizing

The competition between the two groups is one of the biggest weaknesses for both of them. Even though they are separate groups with different mission statements and organizational structures, there is a lot of common ground between them. Reader succinctly describes it as “a bridge that is not strong, but not burned down yet”.⁶⁷ The biggest complaint Reader has with NS/S is that they are not based enough on working with the Tohono O’odham community, even though they promote outreach as one of

⁶⁵ Reader, Tristan. Phone Interview.

⁶⁶ Lopez, Danny. Phone Interview.

⁶⁷ Reader, Tristan. Phone Interview.

their strong suits. Nelson, on the other hand, defends NS/S by stating that they support local organizations doing the hands-on work in communities through the gift of seeds. “We always try to work with local entities, but we’re limited in what we can do, both from a lack of staffing and from not being a part of their community”.⁶⁸ She goes on further to describe the divide between the two as being derived from the fact that TOCA sees NS/S as a group of “outsiders”, who are trying to take over their work. However, Nelson states that NS/S is not in a position to lead the fight against diabetes, but will support the efforts through their unique work of conserving seeds. “We can certainly support other efforts by producing and making available the seeds and foods that help combat diabetes...but the reality is that this work has to come from the inside; it has to come from the communities or tribes themselves”.⁶⁹ As NS/S is not equipped to lead the fight for a sustainable food system through community organizing, and TOCA cannot survive without a larger framework of systemic change, a working relationship and coalition between the two groups could only lead to more success. The competition between them is only holding them back. “We are stewards of the ancient seed, and I do not believe that being competitive is helping anyone,” says Sando.⁷⁰ By falling into this trap, both his organization and TOCA are limited in what work can be accomplished. Lopez pushes further, by describing this competition as making people lose focus on the main purpose, which is to create a sustainable food system leading to diabetes prevention and a reestablished culture. He believes that they should push aside their

⁶⁸ Nelson, Suzanne. Email Interview.

⁶⁹ Nelson, Suzanne. Email Interview.

⁷⁰ Sando, Alex. Email Interview.

differences and work together for the common good.⁷¹ Both TOCA and NS/S approach the problem from a different angle, and through a combination of their efforts, stronger and more visible changes are bound to occur.

⁷¹ Lopez, Danny. Phone Interview.

POLICY RECOMMENDATIONS

Each organization, TOCA and NS/S, focus most of their energy on fighting the increasing loss of the native food system that is integral to Native American culture and health. They approach this issue with different methods, but their overall goal remains the same. Therefore, there are some policies that can be implemented nationally that will aid both organizations' missions. As of February 26th of this year, the US Senate gave final approval to the Indian Health Care Improvement Act, supported by Senator Byron Dorgan of North Dakota. This is a historical moment for the Native American movement, as it is the first time this act has been updated in eight years. Neglect is the best way to describe federal programs for Native American health care, and the approval of this act is a step in the right direction.

This legislation creates important new programs for Native American health care, as well as improves the existing ones. Dorgan has pushed for the approval of this act for years, and finally it was overwhelmingly approved by a vote of 83-10. The bill creates new programs to help combat the most serious health problems facing Native Americans, such as preventing teenage suicides, domestic violence and sexual abuse, as well as enhancing and expanding current diabetes programs. \$35 billion will be infused into the Indian Health Service over ten years.⁷² Dorgan has been a huge advocate of this legislation, and believes its passage to be a huge step in the right direction. "For years, funding has fallen far below what is required, and to make true progress, the Indian Health Care system must be fully funded. It's scandalous when our federal government

⁷² Holland, Judy. "Senate Backs Overhaul Bill That 'Will Save Lives'." Washington Bureau. 26 February 2008.

spends almost twice as much per person for health care for federal prisoners as we do for First Americans,” comments Dorgan.⁷³

The key provisions of the legislation cover a lot of ground and variety of needs for Native Americans. Due to the passage of this bill there will be a continuation of scholarship programs, expansion of current cancer screening programs, as well as sexual abuse and domestic violence prevention programs, and improved diabetes screening including the treatment and control of the disease using modernized equipment and facilities. There will also be more funding towards the urban Indian youth residential treatment centers for alcohol and substance abuse prevention and treatment, as well as encouragement to states to increase outreach to Native Americans to enroll in the State Children’s Health Insurance Program (SCHIP) and Medicaid.⁷⁴ This bill was not met without opposition, however. Even though it was overwhelmingly approved this year, it had been turned down for years. Senator Tom Coburn of Oklahoma voted against the bill, stating “Today the Senate voted to ignore the extensive problems within our Indian Health Services and reauthorized the same, broken system. Without addressing wait lines, rationing and inferior quality in our current system, we are violating our trust obligations to tribal members across the country...”⁷⁵ While it is true that there are major problems within health care systems around the nation, the majority of the Senate decided to reinstate funding for the current system while promising better funding and programs. While there is still approval needed from the House of

⁷³ U.S Senate Committee on Indian Affairs. “Senate Passes Historic Native American Health Legislation.” Washington D.C. 29 February 2008.

⁷⁴ U.S Senate Committee on Indian Affairs. “Senate Passes Historic Native American Health Legislation

⁷⁵ Juris, Corpis. “S.1200, Indian Health Care Improvement Act Amendments of 2007.” 29 February 2008. <<http://proctoringcongress.blogspot.com/2008/02/s1200-indian-health-care-improvement.html>>

Representatives, this is a positive step forward for everyone concerned for the health of Native Americans.

Public Campaigns

Public awareness of the increasing loss of the native food system is integral for forward movement and action. Proper media attention has the potential to be an enormous boost for public action. A recent documentary, “Bad Sugar”, is a great example of reaching out to a large audience. Shown on PBS this past March under the “Unnatural Causes: Is Inequity Making Us Sick?” series, the film explores the environmental and political issues that surround type 2 diabetes among the Tohono O’odham, while also looking at the historical facts that led to the onslaught of this disease.⁷⁶ This documentary is an important asset to the attention this issue gets. By not only focusing specifically on the plight of the Tohono O’odham problems, Jim Fortier, director and producer, also chose to bring up other social issues of inequity, such as neighborhood improvement projects and the living wage. “Things didn’t happen by chance...These things are based on decisions that somebody else made and they are now having horrible consequences on Indian people,” says Fortier.⁷⁷ This documentary showcases to the public what many organizations, such as TOCA and NS/S, have been working against for years. However, with a mass broadcast on PBS, documentaries such as “Bad Sugar” can only aid in the effort to revert back to the traditional food system and work towards future prevention of diabetes. This documentary could be the start of

⁷⁶ Staff Reports. “Documentary to Explore Issues Behind High Diabetes Rates Among Tohono O’odham.” *Indian Country Today*. 19 March 2008. <<http://www.indiancountry.com>>

⁷⁷ Staff Reports. “Documentary to Explore Issues Behind High Diabetes Rates Among Tohono O’odham.”

a national public awareness campaign that would push policy makers into making direct change.

Federal Policies

Policies, such as the Indian Health Care Improvement Act, and media attention are trying to address the immense inequity that is apparent for all Native Americans. However, the root of the biggest problems that Native Americans deal with revolves around larger, systemic issues. Health care, education, and social policies are all interrelated, and federal and local policies must work to change the current dynamics. Federal food assistance programs, such as the Food Distribution Program on Indian Reservations, food stamps, and WIC (Women, Infants, and Children) benefits, are important to the people. However, they do not address the genetic difference of Native Americans and the fact that processed, cheap foods are severely contributing to the diabetes epidemic. Due to the socioeconomic status of the Tohono O’odham Native Americans, food assistance programs are necessary. Yet, these programs must encourage the use of traditional seeds and fresh, unprocessed foods. One way this could be done is to establish the WIC Farmers Market Nutrition Program on the reservation, as well as an increase of traditional nutrition education.⁷⁸ The WIC Farmers Market is a program sponsored by the Food and Nutrition Service of the United States Department of Agriculture (USDA). This would allow for fresh fruits, vegetables, and herbs to be purchased on the reservation. Women, infants (over 4 months old), and children would

⁷⁸ Economic Research Service/U.S. Department of Agriculture. “Food Assistance and Nutrition Programs: RIDGE Summary.” 25 March 2008.
<http://www.ers.usda.gov/Briefing/FoodNutritionAssistance/funding/RIDGEprojectSummary.asp?Summary_ID=84>

be allowed to receive coupons through the Farmers Market Program, as it is under the WIC umbrella.⁷⁹ The distribution of fresh foods through this program would be an immense improvement to the food system on the reservation. While it does not incorporate the traditional food aspect of the declining native food system, it does allow for healthy food consumption which is vital to the prevention and treatment of diabetes.

Grassroots Organizing

Change in policy can also happen from a local level. Federal programs, such as the two listed above, are not the only solutions to the native food system and health problems of the Tohono O’odham Native Americans. Non-profit organizations and grassroots groups, such as NS/S and TOCA, can take charge on a local level, especially regarding proper nutrition education and working to reestablish a more traditional food system. NS/S has the capacity to deliver the native seeds that are becoming extinct to the Tohono O’odham people. Through the preservation of these seeds, they are ensuring that the culture stays intact as well. TOCA, on the other hand, has the tools to reach out to the people on the reservation in a more direct manner. Education surrounding the food system and these native seeds can be accomplished through a joint effort on both organizations’ parts. A more cohesive relationship between NS/S and TOCA is imperative to support the Tohono O’odham people. Through working together, NS/S can bring seeds to the reservation, as well conduct informational workshops on the importance of these foods and how to properly plant them. TOCA

⁷⁹ Food and Nutrition Service/USDA. “WIC Farmers’ Market Nutrition Program.” 25 March 2008. <<http://www.fns.usda.gov/wic/fmnp/FMNPfaq.htm>>

could then support this endeavor by providing the space for these workshops and publicize such events to the people of the reservation. From there, a program could be established between the two groups that allows for this relationship to happen, as well as ensure the implementation of the planting and farming. The Patagonia farm that NS/S owns could also be a part of this program, used primarily as a teaching tool for the Tohono O'odham. TOCA could bring interested patrons to the farm, and the NS/S staff could show firsthand the proper, and traditional, farming techniques required for the planting of the native seeds. If the relationship between TOCA and NS/S could be improved, the Tohono O'odham could learn a great deal about their own food system, as well as improve their own health conditions.

Federal policies and direct action on a local level are vital for the survival of the Tohono O'odham's native food system and culture. A combination of fresh foods supported through federal food programs, such as the WIC Farmers Market, education regarding healthy eating habits and exercise, a return to traditional farming methods using native seeds, and a comprehensive national public awareness campaign could greatly improve the conditions on the reservation. Dr. Yvette Roubideaux, University of Arizona's College of Public Health and Chair of the National Diabetes Education Program's American Indian and Alaska Native Work Group, agrees that these ingredients are important for directing change. "The partnership of community-based healthy living programs and a national public awareness campaign is a prescription for making real inroads to stem the diabetes epidemic in the American Indian and Alaskan

Native communities”.⁸⁰ While the socioeconomic conditions of Native Americans require a much bigger change in public policy, the basic survival of the food system can be a step in the right direction. The health problems which lead to diabetes must be something that is changed immediately, and is something that can be accomplished when the right factors and groups combine together.

⁸⁰ National Diabetes Education Program. “The Diabetes Epidemic Among American Indians and Alaska Natives.”

CONCLUSION

The native food system of the Tohono O'odham tribe in Arizona utilizes a variety of traditions and cultural rites. Also, it brings in healthy foods that are unique to the desert-dwellers, which are able to grow even under the harshest conditions. However, due to federal programs, restrictions to live solely on reservations, water rights issues and other such public policies, the Tohono O'odham food system is depleting everyday. The traditions are no longer practiced as much, and the foods are rarely harvested. Because of limitations and programs delivering food to the reservations, the tribe has been able to get away with no longer farming for survival. The unhealthy, processed foods that were given to the Tohono O'odham are extremely detrimental to their health and have aided in the exponential growth of type 2 diabetes. The combination of poor dietary habits and a lack of physical exercise are the two main conditions that put the Tohono O'odham as the population with the highest incidence of diabetes in the world.

There are a variety of programs and organizations that work to help fight the extinction of the native food system and the onslaught of diabetes. Tohono O'odham Community Action and Native Seeds/SEARCH are two important groups in the Arizona area that work to preserve the native traditions and cultures that revolve around the food system, as well as work to fight the diabetes epidemic. While they may have differing missions and organizational tactics, the two groups are both integral to the survival of the Tohono O'odham as a tribe. Thousands of the people are inflicted with this disease, and many more are on the brink. If the native food system and culture that comes with it is not brought back, the Tohono O'odham will one day no longer exist.

WORKS CITED PAGE

- 1.) Berry, TaWanna. "Millions of American Indians and Alaska Natives at Increased Risk for Type 2 Diabetes." National Diabetes Education Program. 10 August 2004.
<http://www.ndep.nih.gov>
- 2.) Brown, F. Lee and Helen M. Ingram. Water and Poverty in the Southwest. The University of Arizona Press: Tucson. 1987.
- 3.) Economic Research Service/U.S. Department of Agriculture. "Food Assistance and Nutrition Programs: RIDGE Summary." 25 March 2008.
http://www.ers.usda.gov/Briefing/FoodNutritionAssistance/funding/RIDGEprojectSummary.asp?Summary_ID=84
- 4.) Economic Research Service/U.S. Department of Agriculture. "Food Distribution Program on Indian Reservations." 297-303. <
<http://www.ers.usda.gov/publications/fanrr19-3/fanrr19-3m.pdf>>
- 5.) Flaminiano Garces, Cristina and Lisa Sutherland. "Diet of, Native Americans." National Institutes of Health. 2007, Advameg, Inc. 25 November 2007.
<http://www.faqs.org/nutrition/Met-Obe/Native-Americans-Diet-of.html>
- 6.) Food and Nutrition Service/USDA. "WIC Farmers' Market Nutrition Program." 25 March 2008. < <http://www.fns.usda.gov/wic/fmnp/FMNPfaqs.htm>>
- 7.) Hammond, Chef Robert. "Saving Seed – A Gift That Keeps on Giving." Chef's Corner: Celebrating America's Food Traditions. 11 March 2008.
<http://chefroberthammond.blogspot.com/2008/03/saving-seed-gift-that-keeps-on-giving.html>
- 8.) Harris, Keecha Dr. "Community Implications: Food Programs, Policies, and Access Issues." Glynwood Center. 25 November 2007.
<http://www.glynwood.org/programs/foodsec/Community%20Implications%20Food%20Programs,%20Policies,%20and%20Access%20I.pdf>
- 9.) Hatfield, Doe and Analisa Gunnell. "Food Access in California Today." The Vivid Picture Project. October 2005, EcoTrust. 25 November 2007.
http://www.vividpicture.net/documents/12_Food_Access_in_CA_Today.pdf
- 10.) Herz, Cary. Getty Images. "Leadership for Change." 18 April 2008.
<http://leadershipforchange.org/awardees/awardee.php3?ID=68>

- 11.) Holland, Judy. "Senate Backs Overhaul Bill That 'Will Save Lives'." Washington Bureau. 26 February 2008.
- 12.) Inter Tribal Council of Arizona, Inc. "Tohono O'odham Nation." 2003. 2 February 2008. http://www.itcaonline.com/tribes_tohono.html
- 13.) Juris, Corpis. "S.1200, Indian Health Care Improvement Act Amendments of 2007." 29 February 2008. <http://proctoringcongress.blogspot.com/2008/02/s1200-indian-health-care-improvement.html>
- 14.) Kaliseji, Vtla. "Native Americans and Diabetes – The Facts." Native American Diabetes Resources. 14 March 2008. <http://vtlakaliseji.tripod.com/Vtlakaliseji/id2.html>
- 15.) Knowler, William C., Barrett-Connor, Elizabeth, et al. "Reduction in the Incidence of Type 2 Diabetes with Lifestyle Intervention or Metformin." *The New England Journal of Medicine*. Vol 346, No. 6, 7 February 2002.
- 16.) Lopez, Danny. Phone interview. 25 March 2008.
- 17.) Marchand, Lorraine H. "Obesity and Diabetes." National Diabetes Information Clearinghouse. 27 March 2008. <
<http://diabetes.niddk.nih.gov/dm/pubs/pima/obesity/obesity.htm>>
- 18.) National Diabetes Education Program. "The Diabetes Epidemic Among American Indians and Alaska Natives." November 2005. <http://www.ndep.nih.gov>
- 19.) "Native Seeds/SEARCH: Ancient Seeds for Modern Needs." Native Seeds/SEARCH. 2005. 25 November 2007. <http://www.nativeseeds.org>
- 20.) Native Seeds/SEARCH. "2006 Annual Report." September 2006. <http://www.nativeseeds.org>
- 21.) Nelson, Suzanne. Email Interview. 25 March 2008.
- 22.) Peel, Diana. "Native Seeds/SEARCH Founder Tribute Video." 6 April 2008.
- 23.) Reader, Tristan. Phone Interview. 6 March 2008.
- 24.) "Recognizing Early Symptoms Diabetes." Natural Cure for Diabetes. 13 March 2008. <http://12423.blogspot.com/2008/03/recognizing-early-symptoms-diabetes.html>
- 25.) Sanders, David. "Tohono O'odham Celebrate Culture." AZStarNet. 13 December 2006. <http://www.azstarnet.com/sn/tribes/159269>

- 26.) Sando, Alex. Email Interview. 20 March 2008.
- 27.) Schulz, Leslie O., Bennett, Peter H., et al. "Effects of Traditional and Western Environments on Prevalence of Type 2 Diabetes in Pima Indians in Mexico and the U.S." *Diabetes Care*. Vol 29, Number 8, August 2006.
- 28.) Smith, Jeffrey. Seeds of Deception. Yes! Books: New York. September 2003.
- 29.) Staff Reports. "Documentary to Explore Issues Behind High Diabetes Rates Among Tohono O'odham." *Indian Country Today*. 19 March 2008.
<http://www.indiancountry.com>
- 30.) "Tohono O'odham." NativeWiki. 18 April 2008.
[www.nativewiki.org/Tohono O'odham](http://www.nativewiki.org/Tohono_O'odham)
- 31.) Tohono O'odham Community Action. "Basket Gallery." 18 April 2008.
<http://tocaonline.org/Gallery/Gallery1.htm>
- 32.) Tohono O'odham Community Action. "O'odham Ha'icu Ha-Hugic Duakog: Tohono O'odham Food, Fitness & Wellness Initiative Planning Phase Proposal to the W.K. Kellogg Foundation." 20 March 2008.
- 33.) Tohono O'odham Community Action. "Some Principles of Native Food Sovereignty." Principles of Food Sovereignty Forum at Taos, New Mexico. 6 February 2008.
- 34.) Tohono O'odham Community Action. "Wisdom From Our Past Creating Solutions for Our Future." 2 February 2008. www.tocaonline.org
- 35.) U.S. Census Bureau. "Census 2000 Profile Highlights: Tohono O'odham." 2 February 2008. <http://factfinder.census.gov/>
- 36.) U.S Senate Committee on Indian Affairs. "Senate Passes Historic Native American Health Legislation." Washington D.C. 29 February 2008.

APPENDICES

Appendix A: TOCA Photos



*TOCA Co-Directors, Tristan Reader and Terrol Johnson*⁸¹



*Traditional Baskets, woven through TOBO*⁸²

⁸¹ Herz, Cary. Getty Images. "Leadership for Change." 18 April 2008.
< <http://leadershipforchange.org/awardees/awardee.php3?ID=68>>

⁸² Tohono O'odham Community Action. "Basket Gallery." 18 April 2008.
< <http://tocaonline.org/Gallery/Gallery1.htm>>

Appendix B: NS/S Photos



Tarahumara Indian Outreach in Mexico⁸³



Jars of seeds from the Seed Bank⁸⁴

⁸³ Peel, Diana. "Native Seeds/SEARCH Founder Tribute Video." 6 April 2008.

⁸⁴ Peel, Diana. "Native Seeds/SEARCH Founder Tribute Video." 6 April 2008.



*Conservation Farm in Patagonia, Arizona*⁸⁵

⁸⁵ Peel, Diana. "Native Seeds/SEARCH Founder Tribute Video." 6 April 2008.