Explore the Southwest’s Crop Diversity with ADAPTS

Adopt a Crop & Help Protect Endangered Varieties

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March 1st marked my one year anniversary as Native Seeds/SEARCH Conservation Farm Manager. There have been a lot of changes since I arrived here, including the continued development of our conservation work and expansion of the farm program. Our conservation mission has many inherent challenges associated with maintaining a viable seed collection in our seed bank while acknowledging seed sovereignty and providing protection for the rights of the indigenous farmers from whom NS/S originally obtained the seeds. The Conservation and Farm staff is working diligently to address these challenges through innovative programming, seeking new funding sources, and improved outreach to Native American communities and partnering organizations. There are a lot of questions that remain to be addressed, especially in terms of on-farm conservation and how to most effectively support Native American seed sovereignty and food security, but our team is committed to continue working on these issues.

In the summer of 2013, our then Director of Conservation, Chris Schmidt, participated in groundbreaking workshops in Nepal focused on pioneering efforts called Community Biodiversity Management (CBM). In an article in the Fall 2013 issue of Seedhead News, he described CBM as an approach that “provides a strategy to build local capacity for supporting crop conservation, seed sovereignty, and farmer livelihoods.” One of the practices that is a part of CBM is custodian farmer networks. Native Seed/SEARCH has recently added a program called the Native American Growers Network that is part of our long term effort to support indigenous farmers to continually grow and conserve seeds from the broad diversity represented in our seed bank and from existing diversity within their communities. Our existing Native American Conservation Internship Program compliments the Growers Network by providing a hands-on paid work experience at our Conservation Center and Conservation Farm to prepare young people for returning to their tribal communities to establish seed and food production projects. This year, we expanded the Internship program from two to three interns who are profiled in this issue of Seedhead News. Also in this issue, Chris — who is currently responsible for managing Grants and Special Projects — describes a program that we just launched called ADAPTS, a

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publicly accessible platform designed to share and crowd-source information about Southwest agricultural biodiversity. At the Farm we are looking at and experimenting with the elements of traditional, small-scale, diversified arid land farming to find a model that can support an effective farmer custodian network type approach.

Together, each of these pieces of the puzzle contributes to ensuring local and regional conservation of the seeds and their redistribution to Native American communities.

There is still more work to be done to address the need for on-farm conservation to support seed sovereignty and food security in tribal communities. Native Seeds/SEARCH recognizes that it is imperative for us to address the issue of protecting the legal rights of indigenous farmers and this is a serious consideration as we go forward developing new initiatives and programs. Native Seeds/SEARCH is working to adapt strategies to meet the needs of a changing world and to make significant changes in the way we practice seed conservation and promote crop diversity in the Southwest region. It is our sincere hope that you will find our work worthy of your support. We need your help for Native Seeds/SEARCH to continue meeting the exciting challenge of maintaining the integrity of the seed collection while supporting the critical seed sovereignty and food security efforts of Native American communities in the Southwest.

Lynda Prim

We envision the Greater Southwest as a place where farms and gardens, kitchens and tables, stores and restaurants, are brimming with the full diversity of aridlands-adapted heirloom crops; people are keeping the unique seeds and agricultural heritage alive; and the crops, in turn, are nourishing humankind.

Your Support Makes a Difference

Essential partners of Native Seeds/SEARCH are our funders — generous foundations and individuals who share this vision. We offer donors the following options for helping to further our important work. To use our convenient and secure website to make a gift, log on to nativeseeds.org/support, or call 520.622.0830 ext. 100.

Direct Donation  Gifts can be made for unrestricted support or for a specific purpose.

Memorial Giving  Celebrate the lives and achievements of special individuals by making gifts in their honor.

Workplace Giving  Help sustain NS/S through the Combined Federal Campaign, your local United Way, and other workplace campaigns. Many companies offer an Employee Matching Gift Program where they will match your contributions even after you’re retired. Check with your employer for more information.

Legacy Giving  Bequests and life income gifts help ensure food security for future generations. Legal Counsel should be consulted prior to creating or amending any Will. If you have questions, please call or email us at donate@nativeseeds.org.

Staff

Executive Director  Larrie Warren
Finance & Operations Manager  Sheri Morgan
Communications Coordinator & Accounting Assistant  Wendi Mogul
Administrative Assistant  Betty Moore
Grants & Special Projects Manager  Chris Schmidt
Research & Education Program Manager  Joy Hought
Conservation Program Manager  Melissa Kruse-Peeples
Seed Distribution Coordinator  Sheryl Joy
Conservation Farm Manager  Lynda Prim
Farm Operations Technician  Morgan Parsons
Farm Staff  Brian Jungers
Distribution Manager  Laura Jones
Fulfillment Coordinator  Betsy Armstrong
Assistant Retail Manager  Chad Borseth
Retail Associates  Nancy Reid, Laura Neff & Melissa Barrow

Above: Setting up irrigation can be a moving experience.
Native Seeds/SEARCH is proud to announce the availability of its ADAPTS platform, a new online component of its strategy to facilitate public access to climate-appropriate crop diversity. Developed with generous grant support from the Gila River Indian Community, ADAPTS (the “Adaptive Drylands Agriculture Portal for The Southwest”) establishes a portal for public exploration of the varieties maintained in the Native Seeds/SEARCH seed bank. With approximately 1,900 accessions of agricultural crops and crop wild relatives from the southwestern United States and northwestern Mexico, this collection represents a legacy of over 4,000 years of continuous agriculture by the Native peoples of this arid region and later arrivals. In a time of climate change, depleting resources and population growth, crops that are better able to withstand heat and drought, marginal farming environments and low-input agricultural practices hold an important key to resilient and sustainable food systems in the Southwest and beyond. Our hope is that ADAPTS will encourage increased exploration and use of this crop diversity by better connecting farmers and gardeners to the most relevant information and seeds.

For the first time in the history of NS/S, the public will be able to search the entire contents of the NS/S seed bank, down to the level of individual accessions. The accession is one of the most important concepts in seed banking, and represents a distinct population of seeds that is maintained in genetic isolation from other populations. In the NS/S seed bank, most accessions represent a single acquisition of seeds of a specific crop landrace from a single farmer at a particular time and place, plus the descendents of that initial sample of seeds. In the process of ex situ conservation, the genetic identity and diversity of each accession is sustained as much as logistically possible. Up until now, NS/S has presented the diversity in its collection to the public only in terms of catalog entries, such as “Tarahumara Ojo de Cabra” beans or “Alegría” amaranth. While useful for simplifying our communication and seed distribution activities, catalog entries have the unfortunate side effect of obscuring the true diversity within these varieties. For example, the NS/S seed bank actually houses almost 20 accessions of Tarahumara Ojo de Cabra beans, which show significant variation individually and as a group. With ADAPTS, the public finally has the ability to fully explore this remarkable diversity.

ADAPTS provides extensive options for customized searches, using any combination of over twenty search fields (together providing over one million unique combinations of search fields). Seed bank accessions can be filtered by crop type or taxonomy, cultural affiliation, current availability of seeds, geographic aspects of the collection locality (e.g., state, altitude, latitude), distance from a reference location, climatic similarity of the collection locality to a reference location, or all of the above. For example, a community gardener in Las Cruces who is interested in obtaining seeds of chile varieties that might be best adapted to their location could combine those search criteria and obtain a list of relevant accessions, ranked by climatic similarity.

Viewing the information page for a given accession provides a wealth of information: a map and general geographic data on its collection locality (at low precision, to protect the privacy of the donor individuals and communities), cultural associations, seed availability and links to relevant seed access programs, historical climate information (featuring nine different climatic variables highly relevant to agriculture), characterization and evaluation

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data when available, digital photographs, and seedsaving and cultivation instructions. Most of these data have never before been available to the public, so this represents an enormous expansion of public access to information about the NS/S seed bank collection. We are not aware of any other public platform that seamlessly uses climate data to directly connect farmers to crop germplasm.

With grant support from the Southwestern Foundation for Education & Historic Preservation, we are now engaged in further developing ADAPTS to extend its usefulness in important new directions. For example, we aim to use ADAPTS to crowd-source crop information from farmers and gardeners. By engaging the public in the process of crop characterization and evaluation, we should be able to generate a much more extensive base of knowledge about the traits and adaptability of the material in the NS/S seed bank than we could do on our own. A given crop accession, say P03-002 (a tepary bean from the Sierra El Pinacate), is likely to respond quite differently to conditions in Tucson than it will to those in Denver, and its responses are likely to differ from those of P02-010 (a tepary bean from the coastal plain of southern Sonora). Our hope is to eventually generate sufficient data through crowd-sourcing to tease apart the respective climatic tolerances and other characteristics of the accessions in the NS/S seed bank, thereby improving our ability to match farmers with appropriate material.

We encourage you to visit ADAPTS (nativeseeds.org/our-programs/adapts) and start exploring. As always, we welcome your feedback and your support.

2. Browse the results list to identify accessions of interest to you

3. View the information pages for the accessions that you’d like to learn more about or to obtain seeds from
Many of the seeds we steward are either rare in occurrence, threatened by loss of habitat, or in danger of extinction as supplies are small. Keeping them in a seed bank is not enough to ensure their availability for generations to come as seeds age and lose viability. Getting these seeds back in the ground is a necessary means to produce fresh, viable stock and to have plentiful quantities to provide even more seeds to more people.

The 2015 field season finds us with growing nearly 100 different varieties from the NS/S seed bank collection at our Conservation Farm with the goal of increasing viable seed stock to distribute to gardeners and farmers. It takes many hands to conserve native seeds. Each of the crops planted at the farm will be tended by staff, interns, and volunteers.

You can lend a hand by participating in our Adopt-A-Crop program. Your gift of symbolic adoption will directly support our crop conservation work. This year we are highlighting six varieties being grown at the farm as a representation of the incredible crop diversity and stories we aim to preserve. Simply mark a crop on the attached reply envelope, and send it back to us or adopt online at www.nativeseeds.org/adopt-a-crop-2015. After harvest, we will send you a report about the 2015 growout season, including photos and information on these highlighted crops from germination to harvest.

Thank you for being an important part of our stewardship efforts!

Gila River Sweet Corn

*Zea mays*

Our 2015 efforts are to increase the quantity of this rare low desert sweet corn variety originally grown by Pima farmers along the Gila River. In 2014, we successfully grew out this variety allowing us to conserve fresh seed within our seed bank. An unknown prospector collected this accession in the 1860s, along with about a dozen other sweet corn varieties from indigenous peoples living in Arizona. He apparently loved sweet corn and was hoping to plant it later in California. His sweet corn collection passed through the hands of several other seed keepers over the years, eventually reaching Homer Owens who donated the collection to NS/S in 1987. More about the Homer Owens collection and its interesting past can be found in the No. 17 issue of Seedhead News (www.nativeseeds.org/pdf/Newsletters/SeedheadNews17-1987.pdf).

You must give to get, you must sow the seed, before you can reap the harvest.

— Scott Reed

Rio Grande Red Seeded Watermelon

*Citrullus lanatus*

This accession was sent to NS/S from a member who found this “wild watermelon” growing in the Rio Grande Valley of New Mexico. The fruits are said to be small, softball sized with white-to-yellow flesh. What is unusual about this variety is that the seeds are red in color. Is it sweet? Is it bitter? We don’t know yet. It is possible that this variety resembles a species variation known as *Citrullus lanatus* var. *citroides* that does not have edible raw flesh but is used for making candied citron preserves. We will test it and report back.
Every donation counts, every seed counts. Choose one from six rare or endangered heirloom crop varieties which are currently growing at the Conservation Farm. If you donate $50 or more, you will have the option to receive a packet of seeds from the harvest.

**Paiute Yellow Tepary Bean**  
*Phaseolus acutifolius*

Tepary beans are known as some of the most arid-adapted crop varieties in the world. What is unique about this variety is that it is from Paiute farmers of the Kaibab Indian Reservation at 5000 feet. Most tepary varieties are from the Sonoran desert region, lower in elevation. Like other rare, high elevation tepary varieties, this bean is larger and plumper than low desert varieties.

**Guaríjío Chiltepin**  
*Capsicum annuum glabriusculum*

These fiery little peppers pack a punch! Chiltepins are known as the mother of chiles such as jalapeños, bell peppers, and poblanos. These wild chiles were domesticated in central Mexico several thousand years ago. Many wild chiltepin varieties can still be found growing in areas of the Sonoran and Chihuahuan deserts. This variety is used by the Guaríjío peoples of southern Sonora.

**Navajo Banana Squash**  
*Cucurbita maxima*

A type of elongated Hubbard squash with pale to bright orange skin. This variety has not yet been grown by NS/S. It was described by the Navajo family who donated seeds as a very old Navajo variety. This family lives near Oak Spring, New Mexico that once was a stagecoach stop in the late 1800s. They would regularly bring produce to the Shiprock fair in the Fall.

**Tohono O’odham Bilobal Gourd**  
*Lagenaria siceraria*

This plant produces birdhouse or bilobal shaped gourds that are 7-10” long, with a small upper chamber. Originally collected from growers of New Fields, on the Tohono O’odham Nation, near the US/Mexican border. These types of gourds are made into small rattles used to make music in traditional O’odham songs.
A Report from the 2015 Great Lakes Intertribal Food Summit

by Joy Hought, Research & Education Program Manager

I was fortunate to be able to attend the Great Lakes Intertribal Food Summit, hosted by the Oneida Nation of Wisconsin in April. This annual conference works to promote capacity among tribes for the production and marketing of healthy native foods. Food sovereignty has deep cultural and nutritional significance in communities with high levels of diabetes and heart disease, and it is crucial to tribal sovereignty and economic development. Sessions were held on navigating tribal food codes, obtaining USDA and FSA grants and loans, creating business plans, building markets for traditional foods, accessing support for beginning farmers, and navigating procurement requirements in order to bring traditional foods into schools and other venues.

But of course food is not only business and politics — it is delicious and soulful. The conference featured the work of native chefs who designed lunches and dinners to highlight nutritious, flavorful indigenous foods of the Midwest region — including fresh local walleye, blueberries, squash, dandelion greens, wild rice, corn and maple syrup. Chefs included Sean Sherman, the Sioux Chef, whose work highlights the art of indigenous foods of the Dakota and Ojibwe tribes of Minnesota but works nationally with various traditions; Potawatomi chef and food historian Loretta Oden, founder of the renowned Corn Dance Café in New Mexico; and Arlie Doxtator, an executive chef from the Oneida Nation of Wisconsin.

I presented as part of a panel discussing seed saving efforts, alongside Rowen White of Sierra Seed Cooperative, and Zach Paige, who is coordinating a new capacity-building grant from the Administration for Native Americans (ANA) through the White Earth Land Recovery Project. It is exciting and inspiring to be part of this global community of seed savers and also to see the growth of seed projects around the country that Native Seeds/SEARCH and our partners have been able to contribute to through education.

Another key theme of this conference was that food sovereignty in the tribal context is not only a matter of sustainable farming or access to healthy supermarkets - it cannot be separated from environmental resource sovereignty. Nourishing indigenous diets rely on more than the traditional ‘three sisters’ (corn, beans, squash), but require intact, functioning watersheds: healthy rivers where fish thrive; healthy forests where nutritious wild greens, berries, and maple sugar are produced abundantly and sustainably. Patty Loew, journalism professor at the University of Wisconsin, screened a short but powerful video produced by Bad River high school students titled "Protect Our Rice," highlighting the ongoing struggle between mining interests and the health of tribal ecosystems that historically supported wild rice.

I especially enjoyed the talks by Kyle Wisneski, who gave pre-conference tours of his small herd of Shetland cattle, maintained free-range on pasture year-round and never given antibiotics or grain for feed. I met Kyle in May last year at the Seed Keepers workshop Native Seeds/SEARCH conducted together with the Shakopee Sioux Community in Minnesota; Kyle, Ted Skennandore and others have made tremendous efforts to revive the Oneida heritage white corn which was nearly lost. They have also been tenacious in bringing sustainable farming practices to their community, where, just as everywhere else, there is tension between small-scale producers aimed at traditional food markets and tribal government structures that support more conventional products and markets. Theirs is a unique brand of entrepreneurialism that requires problem-solving between indigenous traditions and contemporary tools, such as organic agriculture, permaculture, and conventional economic systems.

From top: Ted Skennandore (Oneida), demonstrating winnowing corn, to blow away chaff from the kernels that will become food or be saved for seed. Happy grass-fed cows at the Tsyunhehkwa farm. Kyle Wisneski (Oneida) with the brooder the farm developed to keep the baby chicks warm. Photos by Elizabeth Hoover, www.gardenwarriorsgoodseeds.com.
Meet Our New Conservation Interns!

Since 2013, generous grants from the Christensen Fund have allowed Native Seeds/SEARCH to host a Conservation Internship program where young interns receive unique training and hands-on experience in crop genetic resources conservation. This summer, we welcome three Native American interns to the organization. For 20 weeks, they will receive unique training and gain hands-on experience necessary to help Native American communities in the Southwest strengthen their own food security and sovereignty.

Raymond Antone is Tohono O’odham. His family is from San Xavier and Fresnal Village in Pima County, AZ, but like a lot of Natives, he has family all over the region. Antone graduated from Sentinel Peak High School and earned an Associate’s Degree from Pima Community College in December 2013. He started thinking about how food gets into people’s homes when he got involved with Pima’s gardening program. While still in college, he joined a home gardening program with the Food Bank and has helped establish gardens all across Tucson. He says that’s when he learned about Native Seeds/SEARCH and what the organization has been doing to protect the future of seed in the region.

“With that in mind and learning more about my own tribe’s agricultural history, I want to learn, contribute, and protect these same seeds. One day I hope to run my own farm and donate some seeds for future generations of farmers and gardeners,” add Antone.

Christopher Honahnie is a 3rd year student at the University of Arizona. He is from Tuba City, AZ, and a member of the Hopi tribe. Growing up on both the Hopi and Navajo reservations in northeastern Arizona, Honahnie had been active in traditional Hopi dryland and irrigation farming since a very young age. But he says it wasn’t until very recently that he realized what kind of immense value farming and seed saving has on the preservation of traditional agricultural practices.

“I have seen a decline in Hopi and Navajo farmers and I wish to combat this issue,” he says, “And I believe putting a halt and reversing this ongoing trend will allow for future generations to learn the importance of farming and seed saving which are essentially basic tools for survival.”

From this internship, Honahnie hopes to learn better techniques in educating the youth on the importance of traditional agriculture. “The youth are our future,” he adds, “And it is our responsibility to do what we can to ensure their survival in an ever-changing world.” Honahnie says he wishes to become a resourceful person in his community so that others will have someone to go to when they want to learn the importance of farming and seed-saving.

KC Sharon Randall is a member of the San Carlos Apache tribe and an environmental technician with San Carlos EPA. She is also co-owner of Sunrise Cafe & Bakery, and the leader of San Carlos 4-H Club, a youth development and mentoring organization. San Carlos residents also know her for her accomplishments in rodeo. The Apache tribe member has dedicated countless hours to helping her community limit its carbon footprint on the world through recycling programs, composting, and gardening. She is passionate about learning, living, and teaching. She loves the outdoors and has always had a passion for environmental studies, following in the footsteps of her family. She says she wants to use the knowledge she gains from this internship to harvest indigenous plants in her community so they will have continuous access to these invaluable resources for the preservation of their culture and community.
From Our Friends

At NS/S, we always love to hear about your planting experience. Friends from all over the country and abroad have sent us pictures of their harvest, and we encourage you to do the same. You can post your photos or updates on our Facebook page or send them to photos@nativeseeds.org.

Thank you for sharing your stories and photos with us!

Glass Gems bought from NSS and grown in Japan, August 2014, and then painted by me. Delicious popcorn!!! No need for salt or butter. *Rebecca Otowa, Japan*

My Native Seeds grey zucchini is done! 14.5 inches long, 4.6 pounds! *Stacy Holmstedt, Mesa, AZ*

Sonora White Wheat crop at Desert Marigold School. Our original seeds were provided by a seed grant from NS/S in 2012. Thank you for the gift of this amazing heritage grain. *Bobi Harshfield, Phoenix, AZ*

Flamenco Tomato, planted seeds indoors in January, planted out in March. Already bearing many green fruit. It won’t be long until we are enjoying fresh ripe tomatoes. *Andy Ward, Bisbee, AZ*

Purple Queen garlic. I got the stock from Native Seeds/SEARCH. Photo taken in April. *Brad VanDyke, Spring City, UT*

This Chiltepin plant is back in Hermosillo from your seed bank! *Miguel Valencia, Hermosillo, Mexico*
Welcomes and Farewells

Recently, we have seen quite a bit of movement within our staff and this has been a period of complexity that can be described as a ‘work in progress.’ And there is more to come in the period just beyond the scope of this issue of Seedhead News. Three of our senior managers are part of this complex movement.

We sadly will say farewell to our very senior manager, Chris Schmidt. Chris has been with Native Seeds/SEARCH since 2009 and he has served as Collections Curator, Director of Conservation, Interim Executive Director and currently as Grants and Special Projects Manager. At the end of July, Chris will leave us to pursue a new career in the field of Public Health. He has been admitted in the School of Public Health at the University of Arizona and will study Public Health and Epidemiology.

Additionally, Melissa Kruse-Peeples will transition from her current role as Conservation Manager and become a remote, half time Education Coordinator for us. Melissa and her husband, Matt, will be relocated to the Phoenix-Tempe area.

Finally, a third member of our senior manager team will also move to a new role. Joy Hought, who has been our Education and Research Manager, will take over the role of Collections Manager.

A new Conservation Manager has been identified and the announcement for this will occur very soon.

We also welcome a new staff member to our Farm in Patagonia. Bryan Jungers, who brings a multiple skillset to our Farm, started as a seasonal worker April 1. Bryan is a current resident of Patagonia.

Lastly, the composition of our Board changed somewhat. Two dynamic Board members have left us and a new dynamic community activist has come on Board. Justine Hernandez and Ron Wong have stepped down from our Board. Justine, a Pima County Librarian, says she cannot give the time the position deserves. Justine is the force behind the seed libraries of Baja Arizona, and the Library Journal magazine named her a 2014 “Mover and Shaker.” Ron Wong is the 3rd generation of the Wong Family who has been farming in Marana, AZ, since 1939. The Wongs’ BKW Farms played an instrumental role in bringing back White Sonora Wheat, a heritage grain that NS/S stewards, to consumers. Justine and Ron will remain two of our closest friends and collaborators. Thank you Justine and Ron for who you are to us!

Joining our Board earlier this year is Doug Biggers, the founder, editor and publisher of everyone’s favorite food mag, Edible Baja. We could not be more pleased and excited with Doug joining our family.
Monsoon Plant Sale
Friday-Sunday, July 17-19, 10 am – 5 pm
(Members-only hour: Friday, July 17, from 9-10 AM)
NS/S Retail Store, 3061 N. Campbell Ave, Tucson, AZ 85719
The monsoon season is a great time to grow plants in the low desert! The annual monsoon season plant sale will offer a diversity of seasonally appropriate varieties for late summer planting. As usual, members get a 10% discount. Look for details in the upcoming e-lert and our Facebook and Twitter pages.

Intro to Seed Saving
Saturday & Sunday, September 12-13, 9 am – 4:30 pm
NS/S Conservation Center, 3584 E. River Rd, Tucson, AZ 85718
At this two-day workshop you will learn the art and science of seed saving and be empowered to help shift humanity toward more sustainable and nourishing food systems. Course fee is $135 for NS/S members or $145 for non-members. Sign up early as this class fills up quickly! Registration is now open at www.nativeseeds.org.