

Seeds of Resistance,
Seeds of Hope
*Place and Agency in the
Conservation of
Biodiversity*

Edited by

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*This volume—simmered in the love of collard greens,
black-eyed peas, ham hock, corn bread,
the American South, and all the world's resilient
Souths—is dedicated to Bob Rhoades.*

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CHAPTER THREE

Food from the Ancestors

*Documentation, Conservation,
and Revival of Eastern Cherokee
Heirloom Plants*

JAMES R. VETETO AND KEVIN WELCH

Southern Appalachia is one of the most biodiverse temperate forest regions in the world (Braun 2001; Cozzo 2004) and has been widely studied by botanists and ecologists (e.g., Martin et al. 1993; Pittillo et al. 1998). A lesser known and studied phenomena is that southern Appalachia has one of the highest currently known levels of agricultural biodiversity in the United States, Canada, and northern Mexico (Veteto 2010). The high levels of forest and agricultural biodiversity in southern Appalachia reinforce the correlation between mountain marginality and biocultural diversity worldwide (Rhoades and Nazarea 1999; Stepp et al. 2005; Rhoades 2007). Recent attempts at reviving the U.S. Biosphere Reserve program in southern Appalachia have recognized agrobiodiversity as a key component in their conservation efforts (Gilbert 2009).

The Eastern Band of Cherokee Indians has the oldest living agricultural tradition in southern Appalachia. The Eastern Cherokee live on approximately 56,000 acres of land in the southwestern part of Appalachian North Carolina and have close to 13,000 active members in the tribe (Perdue 2005; Finger 1991). When first encountered by Europeans in the sixteenth century, the Cherokee were an agricultural people relying

heavily on the “three sisters” plant guild of corn (*Zea mays*), beans (predominately *Phaseolus vulgaris* and *P. coccineus*), and squash (*Cucurbita* spp.), supplemented by hunting and gathering a wide diversity of wild foods. Throughout years of exchange with Europeans, they also gradually began to adopt introduced crops such as potatoes (*Solanum tuberosum*), sweet potatoes (*Ipomoea batatas*), cabbage (*Brassica oleracea*), and cowpeas (*Vigna unguiculata*).

The historical pattern of Cherokee agriculture was for men to clear the fields and help with the planting and harvesting and for women to oversee the day-to-day management of the fields (Greene and Robinson 1987). The women worked the fields twice yearly with bone or stone hoes attached to a stick as was prescribed by the Selu corn origin story. Most of the work time was spent protecting the crops from animals such as crows, rabbit, and deer. This task was generally undertaken by older women, who would sit upon high scaffolds overlooking the family gardens to scare wildlife away. Historical Cherokee life was choreographed by an agricultural ceremonial calendar that featured numerous celebrations. For example, the Green Corn Ceremony was a big harvest festival of thanksgiving that featured rituals, feasting, and dancing for several days, as well as the forgiveness of all crimes committed during the previous year, except murder (Greene and Robinson 1987). Today in Eastern Cherokee life, such festivals are still celebrated but on a much smaller scale. Agriculture as a way of life has greatly declined as Cherokee people have sought off-reservation work, tribal government jobs, or work in the tourist industry of Cherokee, North Carolina. Among those Eastern Cherokee who still grow food today, men and women generally work together in small homegardens tended by older generations.

Recent years have seen a revival of interest in Cherokee gardening and heirloom seeds, and we focus here on several aspects of this ongoing trend. First, we provide a detailed overview of existing Eastern Cherokee agrobiodiversity and examine farmer decision making related to the resilience of heirloom cultivars. Second, we discuss the use of Cherokee agrobiodiversity in tribal culinary practices as a prominent example of how culturally salient traditions promote the continued *in vivo* use and circulation of Cherokee heirloom seeds. Finally, we describe two tribal institutions, the Cherokee Indian Fair Agricultural Exhibit and the Center for Cherokee Plants, as examples of how *in situ* conservation is accomplished by emphasizing culturally salient motifs that encourage the continuation of threatened agricultural lifeways *in vivo* among the tribe.

Eastern Cherokee Agrobiodiversity and Farmer Decision Making

In the fall of 2008 we jointly conducted a study in collaboration with the Center for Cherokee Plants to investigate the survival of Eastern Cherokee heirloom food plants. Participants in the study were recruited by the Center for Cherokee Plants from growers they had worked with previously, and a chain-referral sampling methodology was used to identify and recruit additional participants. In all, fifteen Cherokee heirloom gardeners participated. In-depth oral history interviews were conducted to document biological and cultural aspects of Cherokee heirloom food plants and to investigate the underlying motivations that growers have for continuing to grow traditional heirloom varieties. A benchmark socioeconomic survey was also administered to understand how Eastern Cherokee gardeners were distributed according to variables such as age, gender, education, income level, and spiritual beliefs. The methodologies generally followed those established by Virginia Nazarea (2006) for the “memory banking” of farmers’ cultural and agroecological knowledge about traditional cultivars to complement the more traditional scientific *ex situ* conservation strategy of collecting and storing folk crop varieties in seed bank facilities (also see chapter 1, this volume).

Although fifteen is a small number of informants to interview, we are confident that the interviews provided us with a sufficient grasp of contemporary Cherokee agrobiodiversity. Coauthor Kevin Welch, a native of the traditionalist Big Cove Community, knows almost everyone in the tribe and had been seeking out growers of Eastern Cherokee heirloom vegetable varieties for the previous five years, but not very many Eastern Cherokee gardeners and farmers still grow heirloom varieties. The results from the socioeconomic surveys (see table 3.1) showed that the Eastern Cherokee heirloom growers whom we interviewed were predominately male, elderly, retired, and low income. On average, each grower was maintaining about twelve heirloom varieties on 1.68 acres of land, and all but two of the growers were producing primarily for home consumption in small homegardens. These elderly growers were mostly Baptist, and they had achieved, on average, an eleventh grade education.

Despite the relatively low number of growers, the agrobiodiversity they are still maintaining is relatively high: 32 species and 128 distinct folk crop varieties are still being grown by Eastern Cherokee gardeners (see table 3.2). Beans were most numerous among heirloom cultivars ($n=45$), followed by apples (*Malus pumila*, $n=20$) and corn ($n=14$). Some of the most culturally significant varieties include Cherokee White Flour corn, Cherokee Tender October beans (*P. vulgaris*), Cherokee butterbeans

Table 3.1. Socioeconomic data from 15 Eastern Cherokee heirloom growers

Category	Average	Total
Number of heirloom varieties grown	12.33	185*
Acres in production	1.68	25.18
Gender		14 male, 1 female
Age	70.07	
Annual household income (n=11)**	\$25,000 (median)	
Occupation		Various, mostly retired (n=8)
Years of education (n=13)**	10.69	
Religion/spirituality		Various, mostly Baptist (n=10)

*Includes fifty-six varieties that are maintained by multiple growers, so the total is higher than the 128 total distinct heirloom varieties grown cited elsewhere in this study.

**Several growers chose not to provide this data on the survey, and this is reflected in the lower number of responses.

Table 3.2. Eastern Cherokee folk crop varieties documented in the present study

Plant Type	Scientific Name	Total Varieties (N=128)	Examples of Local Variety Names
Bean	<i>Phaseolus vulgaris</i> <i>P. coccineus</i> <i>Dolichos lablab</i> <i>Richinus communis</i>	45	Tender October, Cherokee Butterbean, Yellow Hull Cornfield, Greasy Cutshort, Striped Creaseback
Apple	<i>Malus pumila</i>	20	Green-Striped Winesap, Horse, Lunsford, Sheepnose, Stamen
Corn	<i>Zea mays</i>	14	Cherokee White Flour, Cherokee Yellow Flour, Pearl Hominy
Greens	<i>Brassica</i> spp. <i>Lepidum sativum</i> <i>Rorippa nasturtium</i>	8	Cherokee mustard, Creasy Greens, water- cress, Winter mustard

Table 3.2. Eastern Cherokee folk crop varieties documented in the present study (continued)

Plant Type	Scientific Name	Total Varieties (N=128)	Examples of Local Variety Names
Squash/ pumpkin	<i>Cucurbita maxima</i> <i>C. argyrosperma</i> <i>C. pepo</i>	8	Old-time Pie pumpkin, Roughbark Cherokee Candy Roaster, Cushaw, White Winter squash
Tomato	<i>Lycopersicon</i> <i>esculentum</i>	7	Cherokee Purple, Walter Johnson Strikey
Gourd	<i>Lagenaria siceraria</i> <i>Luffa acutangula</i> <i>Trichosanthes anguina</i>	6	Caveman, Vine Okra, Dipper, Snake
Okra	<i>Abelmoschus</i> <i>esculentus</i>	3	Red, Green
Cowpea	<i>Vigna unguiculata</i>	3	Clay, Little Red Field, Whippoorwill
Grape	<i>Vitis</i> spp.	2	Pink, Purple
Peach	<i>Prunus persica</i>	2	Purple Indian, White Indian
Cherry	<i>Prunus avium</i>	1	Wild
Gooseberry	<i>Ribes</i> spp.	1	Gooseberry
Ground cherry	<i>Physalis pubescens</i>	1	Yellow
Jerusalem artichoke	<i>Helianthus tuberosus</i>	1	Jerusalem Artichoke
Jobs tears	<i>Coix lacryma-jobi</i> var. <i>lacryma-jobi</i>	1	Cornbeads
Peanut	<i>Arachis hypogaea</i>	1	Georgia Red
Pear	<i>Pyrus communis</i>	1	Barlett
Plum	<i>Prunus</i> spp.	1	Wild
Potato	<i>Solanum tuberosum</i>	1	Irish Cobbler
Rhubarb	<i>Rheum rhubarbarum</i>	1	Rhubarb



FIGURE 3.1. Cherokee butterbeans (*Phaseolus coccineus*) displayed in a traditional Cherokee basket at the Cherokee Indian Fair Agricultural Exhibit. A basket of popcorn (*Zea mays*) is in the background. Photo by Keith Nicholson, used with permission.

(*P. coccineus*; see figure 3.1), Cornbeads (*Coix lacryma-job* var. *lacryma-jobi*), Old-Time Cherokee mustard (*Brassica juncea*), Irish Cobbler potato, Yellow ground cherry (*Physalis pubescens*), Sheepnose apple, White Indian peach (*Prunus persica*), and Cherokee Roughbark Candy Roaster squash (*Cucurbita maxima*).

Motivations for Seedsaving and Heirloom Gardening

To investigate motivations for seedsaving, the informants were simply asked, "What makes this a variety that you like to grow?" Varieties that

they cited in a free list activity, along with their reasons, were recorded without further prompting. This slight turn-of-words from the "What is this plant used for?" that is more often employed in ethnobotanical studies was used in an attempt to provide for a wider spectrum of farmer motivations for seedsaving. The reasons that Eastern Cherokee growers gave for continuing to grow and maintain heirloom cultivars were numerous and varied (see table 3.3). Grower responses were coded and empirically grouped into categories. Cultural, ecological, economic, and other reasons for persistence were given in various ratios. We later organized responses further into two broad categories, cultural and utilitarian importance or salience. Some of the responses that Cherokee growers gave could be grouped into neither category; twelve responses fit into this "other" category, including maintaining heirlooms for curiosity, sharing, good smell, and unique appearance.

We use the "cultural" versus "utilitarian" categories in the analysis that follows, although it is probably ultimately the case that categories proposed by scientific researchers to organize and structure cultural phenomena are too interconnected to be considered separate domains in holistic cultural systems. Cognitive ecological anthropologists such as Gregory Bateson have previously pointed this out: "Our categories 'religious,' 'economic,' etc. are not *real* subdivisions which are present in the cultures we study, but are merely *abstractions* which we make for our own convenience when we set out to describe cultures in words. They are not phenomena present in culture, but are labels for various points of view which we adopt in our studies" (1972:64). Tim Ingold (2000) points out that such categorizing behavior by scientists has its roots in the Western natural philosophy tradition (e.g., Aristotle, Descartes, Kant) based on a strict dichotomy between mind and nature and between nature and culture.

Cultural and utilitarian reasons for decision making cannot be completely separated. For example, culinary traditions and tastes (ethnogastronomy) are highly cultural in nature, but they also fulfill very practical nutritional needs for humans. Yet, despite the role of food in providing basic biological sustenance for human survival, it is still the case that nutritional needs can be met in a diversity of ways and that resulting gastronomic traditions are heavily tempered by cultural norms. As Paul Minnis has pointed out, "A meal of peanut butter and fried worms topped off with chiles may be very nutritious, but it would be unacceptable to most North Americans because the foods are combined in culturally, not biologically, inappropriate ways" (2000:3). The reasons for agrobiodiversity persistence that guide farmer decision making and their relationship to food traditions can be more properly understood as being intermingled or biocultural in nature (Maffi 2001; Veteto and Skarbo 2009).

Table 3.3. Grower motivations for maintaining heirloom varieties*

Reason	Number of responses
Cultural salience	
Specific culinary preferences	211
Taste/Flavor	90
Cultural heritage	51
Display/compete at Cherokee Indian Fair	26
Aesthetics	15
Cherokee jewelry making	4
Sharing with others	4
Cultural education	3
Total	404
% relative to utilitarian salience	83.64
Utilitarian salience	
Food preservation quality	31
Market value	16
Vegetable quality	8
Animal feed	6
Size	4
High yielding	3
Water container	2
To increase seed stock	2
Local adaptation	1
Disease resistance	1
Fast cooking	1
Pest control	1
Easy to grow	1
Cover crop	1
For bean trellis	1
Total	79
% relative to cultural salience	16.35

*Individual responses were coded from in-depth oral history interviews with fifteen growers. For each heirloom cultivar the grower was asked, "What makes this a variety you like to grow?"

The more traditional categories of agronomic, economic, and ecological reasons for farmer decision making and agrobiodiversity persistence are not easily separated either, despite the tendency of previous researchers to rarely question their validity and accuracy (e.g., Bellon 1991). For example, if a farmer chooses to grow a folk crop variety for the agronomic reason that it produces well, that characteristic is most likely also related to its adaptation to local ecological conditions and may also be related to its success at local markets. Thus, categorizing reasons for farmer deci-

sion making is largely an heuristic device for researchers to better explain what is influencing farmer decision making. We need to keep in mind that such decisions are rarely made along variables that are completely isolated from other influencing factors. Actual decision making is also heavily tempered by a preattentive process that is holistic and not easily broken down into categories: "The preattentive process is a nondeliberate simplification that hinges on the actor's 'feel' of the situation. It narrows down the range of alternatives from those possible to those feasible and thereby sets the stage for deliberate or attentive consideration of the remaining options" (Nazarea-Sandoval 1995:16).

Despite the complexity of agricultural decision making, coding participant responses and categorizing them are useful exercises for helping researchers understand why farmers make decisions. In categorizing reasons for agrobiodiversity persistence among the Eastern Cherokee as being either cultural or utilitarian in nature (or "other" if they are largely idiosyncratic and do not qualify for either category), we fully recognize the need to conduct more research into investigating the cultural context of agrobiodiversity research (Brush 1992; Perales et al. 2005). By contrasting cultural salience with utilitarian salience (agronomy, economy, ecology) in interpreting agrobiodiversity persistence, a clearer picture of why growers still choose to maintain high levels of agrobiodiversity in a postagrarian area of the most industrialized nation in the world emerged. The results of this study indicate that cultural salience is the prevailing motivation for Eastern Cherokee growers to perpetuate heirloom cultivars.

Culinary Traditions

The Eastern Cherokee have a unique and varied culinary tradition that includes many traditional dishes that are prepared from heirloom varieties. We include a brief overview of the most popular Eastern Cherokee dishes so the reader can get a sense of how Cherokee agrobiodiversity is transformed into culturally valued foodstuffs through the medium of cooking and other food preparation technologies. Bean bread (Cherokee: *Tu-ya-di-su-yi-ga-du*) is a mixture of cornmeal, flour, and cooked beans that are mixed together, wrapped with soaked hickory (*Carya* spp.) leaves and tied together with young river grass, and low-boiled for about thirty minutes (Plemmons et al. 2000). The bean bread is unwrapped after cooking and can be eaten with toppings such as animal grease or cooked greens. Cherokee heirloom corn and bean varieties are favored by traditional cooks for making bean bread and often include Cherokee White Flour corn and Cherokee butterbeans as the main ingredients.

Unlike bean bread, leather breeches is a food preservation and culinary tradition that white Appalachian settlers adopted from the Cherokee and is still used widely by old-time Appalachian gardeners and farmers. Leather breeches (Cherokee: *A-ni-ka-yo-su-hi-tu-ya*) are green beans that are prepared by a traditional method of picking them when they make a full bean in the pod, taking a needle and thread and stringing dozens of bean pods together, and then hanging them up in a dry area to save for winter cooking. A more modern way of preparation is to cut the pods in half and remove the strings, lay them out in an area such as a greenhouse, and then store them in zip-top plastic bags until they are needed for cooking. In wintertime, the leather breeches are soaked overnight in lightly salted water and then cooked for several hours with fatback or pieces of bacon and a little bit of salt. The taste of leather breeches is unique and quite different from green beans that are cooked fresh. Preferred heirloom varieties for making leather breeches include Cherokee October beans, Yellow Hull Cornfield beans, Greasyback beans, and White Half-runner beans (all *P. vulgaris*).

Corn, Beans, and Walnut (Cherokee: *Ce-di Selu I-asa Asu-yi*) is a mixture of corn that has been processed into hominy and cooked beans that is and flavored with a paste made from black walnuts (*Juglans nigra*). This dish is typically sweetened with honey or sugar and eaten as a dessert. Heirloom corn and bean varieties such as Cherokee White Flour corn, White Hickory King corn, Cherokee October beans, or Cherokee Cornfield beans (*P. vulgaris*) are preferred to give the dish its desired flavor. Other dishes such as Candy Roaster and Cushaw Fritters (Cherokee: *U-ja-she-gwa U Je-sdi*), Sweet Potato Bread (Cherokee: *Oo-gu Na Sti-nu-nv Ga-du*), Grittled Bread, Hickory Nut Soup (Cherokee: *Ga Na-sti*), Persimmon Pudding (Cherokee: *Sa-li*), and Hominy Corn Drink (Cherokee: *Gu-no-he-nv*) complement these “anchor” dishes and utilize heirloom garden plants and wild harvested foods in an extremely diverse Cherokee culinary repertoire (Plemmons et al. 2000).

Our research results indicate that almost all Cherokee heirloom food plants are grown because of the flavor they impart into traditional Cherokee dishes. That being the case, efforts at preserving Cherokee cuisine such as the publication of Cherokee cookbooks (e.g., Gwaltney 1988; Plemmons et al. 2000), serving traditional Cherokee foods at the Cherokee Indian Fair, and hosting community potlucks featuring traditional dishes by local organizations such as the Center for Cherokee Plants are valid and potent strategies for promoting the conservation of Cherokee agrobiodiversity.

The Cherokee Indian Fair Agricultural Exhibit

The Cherokee Indian Fair is a fall festival that has been ongoing since 1914. It is held every October, and Joan Greene and H. F. Robinson (1987) have argued that it represents a modified carryover of the Green Corn Ceremony, which was traditionally held near the end of September when the corn crop had matured. The agricultural exhibit at the fair gives Cherokee growers a chance to compete at growing traditional Cherokee crops. From our observations, the agricultural exhibit gives Cherokee growers important incentives for promoting agrobiodiversity conservation and agricultural innovation using traditional crops. Major awards are given in categories of traditional Cherokee food crops and plants. In addition, local plant breeders are sometimes rewarded for showy innovations they have made on traditional cultivars. In the fall of 2008, when coauthor James Veteto had the honor of being one of the judges at the agricultural exhibit, the competing categories for the agricultural exhibit were numerous (listed in table 3.4). These prize categories encourage people to grow a wide diversity of traditional Cherokee plants. Many of the growers that we interviewed participated in the agricultural exhibit, and for several it was the main venue and motivation for continuing to grow out traditional varieties (figure 3.2).

A second theme that the Cherokee Indian Fair Agricultural Exhibit promotes, though perhaps unintentionally, is that of encouraging the continuation of Cherokee agricultural innovation. The Cherokee have nurtured their heirloom varieties for hundreds—if not thousands—of years and have carefully selected cultivars that are adapted to local soil types and resistant to pests and diseases, in addition to tasting good in traditional culinary dishes and playing an important role in cultural history and identity. However, since most Cherokee today do not depend on agriculture for their subsistence, it is likely that agricultural innovation through selection and adaptation to a changing environment has slowed considerably. During the course of oral history interviews, it became apparent that the agricultural exhibit provides a more modern venue for continuing cultivation, selection, and innovation of Eastern Cherokee crops. Two examples of local crop breeding illustrate this point. One Cherokee gardener had a lavender variety of Cherokee October bean in his collection, a rare and unique color that is not often seen in October beans in western North Carolina. When asked about this “anomaly,” the grower replied:

They had two or three colors of October beans [previously] and the other lavender bean was a butterbean. And seeing Dad develop stuff I said, “I wonder if I could get that color in these other beans?” So

Table 3.4. Competition categories at the Cherokee Indian Fair Agricultural Exhibit

Corn multicolored kernels (<i>Zea mays</i> —thirty ears)	Other winter squash (<i>Cucurbita</i> spp.)
Indian Flour corn (<i>Zea mays</i> —thirty ears, no dent, eight rows of kernels per ear—yellow, white, other colors)	Pumpkin (<i>Cucurbita</i> spp.—largest, ugliest, painted)
Indian beans (<i>Phaseolus vulgaris</i> , <i>P. coccineus</i> —one peck, shelled and dried, displayed in an Indian basket, including October beans and butterbeans and other traditional Cherokee bean types)	Ornamental gourds (<i>Lagenaria siceraria</i> , <i>Trichosanthes anguina</i> ; fresh, undecorated, displayed in an Indian basket)
Corn beads (<i>Coix lacryma-jobi</i> var. <i>lacryma-jobi</i> —1/2 gallon, displayed in an Indian basket)	Other pumpkin (<i>Cucurbita</i> spp.)
Traditional crops of the Cherokee (a display of three to five different traditionally cultivated crops, including the Cherokee and English names of each crop)	Herb display (five different fresh or dried herb plants, all labeled, with Cherokee name and plant uses, including food, flavor, medicine, dye, or fiber)
Field corn (<i>Zea mays</i> —ten ears; white, yellow, and other colors)	Any other traditional Cherokee crop (wild or cultivated, must include a card with an explanation of what it is and how it is used, and the Cherokee name and plant uses)
Honey production (three jars—without comb, with comb)	Largest gourd (<i>Lagenaria siceraria</i>)
Sweet potatoes (<i>Ipomoea batatas</i> —one peck)	Largest sunflower (<i>Helianthus annuus</i> , diameter of head)
Winter squash (<i>Cucurbita</i> spp.)	Unusual vegetable
Candy Roaster (<i>Cucurbita maxima</i>)	Largest Candy Roaster (<i>Cucurbita maxima</i>)
Cushaw (<i>Cucurbita argyrosperma</i> , orange or green striped)	Popcorn (<i>Zea mays</i> —five ears, displayed in an Indian basket)
Irish potatoes (<i>Solanum tuberosum</i> —one peck, white and red)	



FIGURE 3.2. Kevin Welch and Sarah McClellan-Welch attaching award ribbons at the Cherokee Indian Fair Agricultural Exhibit. They are holding a snake gourd (*Trichosanthes anguina*). Photo by Keith Nicholson, used with permission.

I planted them together and it was three or four years and I was going through—well I'll never forget it, up in the holler—and there was a pod shaped like a butterbean but it was much smaller. I knew it wasn't a butterbean. I said, "I wonder," so I marked it and it got dry shelly and it was the same shape as a butterbean, but it wasn't that big. It had the color I was looking for. So the next year I began to get the color in the October beans and in—I call the kidney-type beans—I got color in them too. [This is interesting since mountain butterbeans and October/kidney beans are two different species, *P. coccineus* and *P. vulgaris*.] (Veteto 2010:105)

This Cherokee gardener is a local legend for winning many of the grower categories at the Cherokee Indian Fair and has done so for many years. The Agricultural Exhibit provides him motivation for breeding new variation into his Cherokee heirloom seed stock, and he is rewarded for his agricultural innovations by winning at the fair. However, his success

has not precluded continued propagation and maintenance of his other distinct, traditional Cherokee cultivars, as he grows out and displays them as well. The overall diversity in his collection of seed stock is being increased through his informal plant breeding without sacrificing the original germplasm from which it originated.

Another Eastern Cherokee grower has developed a multicolored Cherokee Flour corn that has white, yellow, blue, purple, and red kernels. This colorful corn variety is in contrast to the white and yellow flour corn varieties, which are widely acknowledged as the long-time cultivars of the tribe. He has selected and bred it to display at the Cherokee Indian Fair Agricultural Exhibit, just as the grower described above has been doing with October beans. According to him:

I did it on purpose to get the kernels bigger on the Indian corn. What it does is make a wider grain.

[I have been breeding] these, maybe fifteen years. Probably been going on longer than that. . . . There was a big competition at the festival. Each family would try to win it a long time ago. It's not that way anymore, not as much as it used to be. They would just about fight over first prize at the festival.

[I cross] mostly just old flour corn really. Sometimes it gets mixed in with field corn but that depends on when you plant it and where you plant it . . . The old flour corn here is the white that you see in it. You can take all this out and plant it and it will eventually turn all back to white and take the color out of it. I usually plant a field of white but this year I didn't and they made a yellow. This is a yellow, it's just like the white and it will be this color [gestures]. So, this is all mixed up, it's really white and yellow [flour corns]. (Veteto 2010:108)

Note that the agricultural exhibit was providing motivation for Cherokee grower innovation, but for aesthetic reasons that are likely different from motivations of Cherokee farmers hundreds or thousands of years ago. However, even though these newer Cherokee varieties that are being developed by growers from traditional seed stock to display at the agricultural exhibit are being grown for aesthetic reasons, they are at the same time being adapted to local environmental conditions as they are bred and grown out in contemporary Cherokee gardens. And again, this grower is creating new varieties out of old seed stock but is also careful to keep the original seed stock pure from mixing and being lost.

The Cherokee Indian Fair Agricultural Exhibit provides a venue for continuing Cherokee agricultural innovation in a more modern setting and helps ensure that Cherokee agrobiodiversity continues to evolve

while also saving time-honored and cherished heirloom varieties. The agricultural exhibit acts to promote Cherokee agricultural and wild plant diversity by providing a community outlet for celebrating Cherokee cultural identity and traditional plant use. The inclusion of the agricultural exhibit in a larger cultural event such as the Cherokee Indian Fair provides a performative, and edible, link between culture and agriculture that perpetuates the cultural relevance of Cherokee agrobiodiversity. Although the agricultural exhibit is not an official or intentional conservation program, it directly engages several of Nazarea's (2005) suggestions for supporting and promoting *in vivo* agricultural lifeways that are the cornerstone for any agrobiodiversity conservation efforts. The fair, by recognizing Eastern Cherokee gardeners as creators and curators of agrobiodiversity and by giving incentives for seedsavers to propagate Cherokee heirloom cultivars, serves as a tangible site of memory and indirect promoter of *in situ* conservation. It also engages the milieu of memory of local gardeners as they maintain local varieties in their fields to be able to compete in the fair. Memories of past agricultural exhibit events are also kept alive in the circulation of local Cherokee stories (Veteto 2010; see also chapter 2, this volume).

The Center for Cherokee Plants

The Center for Cherokee Plants is a conservation program that was officially established by coauthor Kevin Welch in 2007, and work on the center's projects has been ongoing since 2005. The motto of the center is "Putting Culture back into Agriculture" (see figure 3.3). It is located at the traditional Kituwah "mothertown" sacred site on two acres of land that contain several abandoned dairy buildings that are being remodeled for the center's use. The land was donated by the business committee of the Eastern Band of Cherokee Indians (McClellan-Welch 2008). Welch, an enrolled member of the Eastern Band of Cherokee Indians and born and raised in the traditionalist Big Cove Community, spent many years away from the reservation working at different professions. Upon returning in 2000, he began to search around for the old-time Cherokee cultivars that he remembered from his youth, such as Cherokee October beans and Rattlesnake pole beans. He found that far fewer Cherokee people were growing out traditional cultivars than in the past and that the growers were elderly and spread out in small pockets across different Cherokee communities. Many of the growers possessed seed stocks that were so low that they could no longer share seeds with their neighbors, a time-honored Cherokee tradition. Welch was disturbed by

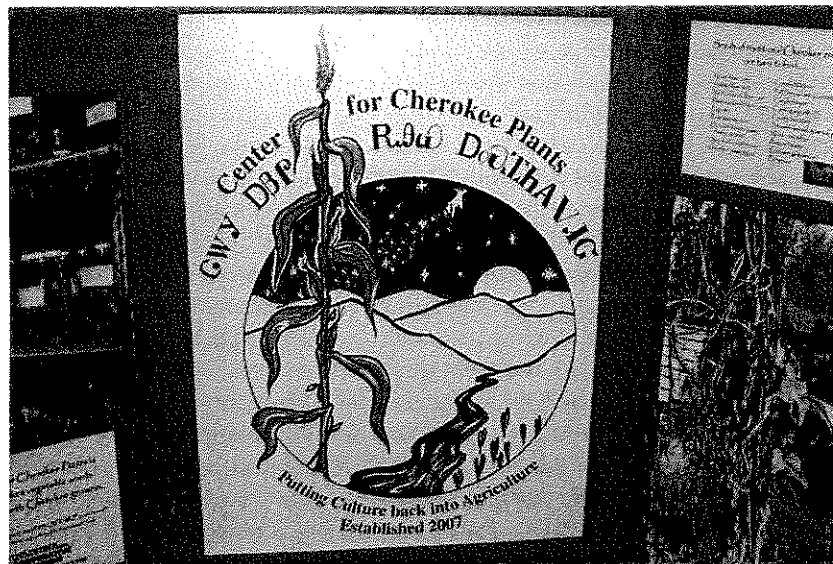


FIGURE 3.3. Official logo of the Center for Cherokee Plants. Its motto is “Putting Culture back into Agriculture.” Photo by James R. Veteto.

the limited availability of traditional Cherokee seeds and plants, so he started the Center for Cherokee Plants as a way to conserve, promote, and revitalize Cherokee seeds, plants, and foodways.

Since 2007, the Center for Cherokee Plants has been engaging in grow-outs of Cherokee heirloom seeds and making them available to the local community. The center participates in the Chief’s Cherokee Family Garden Project to help get heirloom seeds back in the hands of Cherokee growers and to promote local gardening and food production. In addition to seed conservation and distribution, the center has also established a tribal plant nursery to grow out plants that are utilized by Cherokee artists, along with wild food plants, medicinal plants, wildlife habitat and erosion control plants, and heirloom fruit varieties. The nursery also serves as a repository for plants that have been rescued from local construction sites (McClellan-Welch 2008). The Center for Cherokee Plants sponsors educational programs on traditional Cherokee agriculture throughout southern Appalachia and has engaged in outreach, networking, and consultation with heirloom seed conservation projects of several other American Indian tribes. The center also periodically hosts potlucks highlighting traditional Cherokee foods, which provides a venue for dishes cooked with heirloom varieties to be appreciated by the larger Cherokee community.

Promoting Cherokee culture is central to the mission of the Center for Cherokee Plants. Their cultural approach to conservation has a high degree of success and is consistent with the findings of this research—that local growers are maintaining folk crop varieties largely because of cultural relevance. Conservation initiatives among other indigenous people, for example, “cultures of the seed” in the Peruvian Andes (Gonzales 2000; see chapters 4 and 5, this volume), have also been successful by promoting the conservation of biological and cultural diversity through cultural themes (Nazarea 2006).

Conclusions

Agrobiodiversity conservation programs worldwide have seen a trend toward *in situ* strategies over the past twenty-five years (Maxted et al. 1997; Brush 2000; Hammer 2003). Although recognized as being complementary and in some ways superior to *ex situ* strategies, programmatic *in situ* conservation initiatives have been critiqued for their shortcomings (see, e.g., Nazarea 2005). Nonetheless, community-based conservation efforts such as those undertaken by the Eastern Cherokee have a lot of potential for conserving agrobiodiversity and at the same time celebrating and strengthening cultural identity and *in vivo* agricultural lifeways. Indeed, most seedsaving among the Eastern Cherokee, in the Mountain South in general (Veteto 2010), and among agriculturalists worldwide (Nazarea 2005) is carried on *in vivo* and has been largely beyond the reach of conservation initiatives. Any successful *in situ* conservation effort must therefore have direct relevance to the everyday practices of farmers and gardeners in the communities in which they are operating, since such individuals are both the originators and perpetuators of diverse cultivars in the gardens and fields of the world.

From the long-running Cherokee Indian Fair Agricultural Exhibit to the more recent advent of the Center for Cherokee Plants, the Eastern Cherokee have had community mechanisms in place to conserve agrobiodiversity. These strategies have become more important as, for various reasons, the number of Eastern Cherokee practicing traditional agriculture decreased dramatically in the last forty years. From a plant conservation and historical perspective, Cherokee efforts at *in situ* conservation are extremely important as the Eastern Cherokee are the original agriculturists of southern Appalachia—the region with the highest known levels of agrobiodiversity in much of North America—and progenitors of much of southern Appalachian agrobiodiversity.

Our research indicates that Cherokee heirloom growers are continuing to maintain their folk crop varieties for reasons that are largely cultural

in nature. Eastern Cherokee culinary traditions are strongly linked to Cherokee culture and identity. Although generally in decline due to the spread of modern American foods, these traditions have been preserved to a large extent through family customs, community gatherings and celebrations, and the local publication of Cherokee cookbooks. The Cherokee Indian Fair Agricultural Exhibit is linked to traditional Cherokee life patterns through its proximity to the time of the Green Corn Ceremony and provides a venue for Cherokee growers to exhibit and take pride in their Cherokee identity as an agricultural people. It is as much a cultural as it is an agricultural event. The successes that the Eastern Cherokee have had conserving their highly diverse agrobiodiversity repertoire over time, and the interest that present-day programs focusing on celebrating and reviving Cherokee culture and agriculture have generated, provide a compelling rationale for incorporating cultural heritage programs into existing *in situ* conservation efforts.

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CHAPTER FOUR

Sense of Place and Indigenous People's Biodiversity Conservation in the Americas

TIRSO GONZALES

Place for indigenous peoples is where language, culture, daily life, spiritual ceremonies, and rituals nest and dynamically interact. Not all indigenous peoples are agriculturalists; however, for most of them, life revolves around agriculture. This is the case for Andean indigenous peoples of Colombia, Ecuador, Peru, and Bolivia. Its total population is around 17 million individuals, and a significant segment of this population still has strong ties to the land and a unique complement of culture- and place-based strategies of agrobiodiversity conservation. Between the indigenous and the Western Euro-American centered, there are two different ways of knowing (epistemologies), of being (ontologies), and of relating to life and the cosmos (Nakashima et al. 2012; Pimbert 1994a, 1994b; Posey 1999). For the last seventy years, through different top-down strategies and paradigms, rural and agricultural development has been, in many significant ways, eroding indigenous peoples' places in the Andes, and the Americas as a whole (Escobar 1995; Gonzales and Gonzalez 2010; IAASTD 2009; LaDuke 1990; Rengifo 2010; Tauli-Corpuz et al. 2010).