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# Wild Plant Classification in Little Dixie: Variation in a Regional Culture

Justin M. Nolan[1]

**Abstract**

*This study examines the relation between folk expertise and wild plant classification in Little Dixie, a seven-county vernacular cultural region in central Missouri. A successive pile-sort task was administered to ten local wild plant "experts" and ten "novices" of Euro-American descent to investigate how ethnobotanical knowledge influences the cognitive construction of folk taxonomies. The results indicate that experts categorize plants according to utilitarian features (e.g., edibility, medicinal value) and morphology (e.g., herbs, trees) while novices rely almost exclusively on morphological traits. While the classification strategies of experts and novices are substantially different, a single categorization system is common to both groups. Novices vary less in their responses than experts, which is explained by the novices' use of a highly shared, imagistic classification system and the experts' mastery of alternate ways of categorizing the wild plant domain. These findings strongly suggest that ethnobotanical classification is based fundamentally on the recognition of ostensible perceptual features of plants, but progressively guided by the recognition of culturally learned functional attributes.*

"The only difference between a flower and a weed is discrimination."
(Anonymous)

## Introduction

Ethnobiologists and cognitive anthropologists have made considerable progress toward understanding how people transform their natural worlds into meaningful cultural categories (e.g., Gardner 1976; Brown 1977, 1979; Hunn 1982; Boster and Johnson 1989; Atran 1990; Berlin 1992; Medin and Atran 1999). While ethnobiological classification is a complex and varied phenomenon, it is based fundamentally on human recognition of both perceptual and functional attributes that characterize living things. Recent works have shown that variation in folk category construction can be explained in terms of the level of expertise, or cultural competence, of the classifier. For instance, Boster and Johnson (1989) have discovered that novices rely on primarily morphological cues when classifying different types of marine fish, while experts make use of morphological data in addition to utilitarian information gained through experience and learning. Other works indicate that expertise and familiarity play an important role in category construction, as shown by Medin et al. (1997) in their study of tree classification.

What has yet to be investigated, however, is the extent to which personal expertise and interest affect the classification of a much broader domain—wild plants. The interactions between people and plants comprise a very significant yet understudied element of regional cultures in the rural US. Therefore, the purpose of this paper is to explore how expert and novice respondents categorize wild plants in a vernacular region of the American Midwest where the use of local flora is an important aspect of folklife and regional identity.

Two hypotheses are proposed in this study. Following Boster and Johnson's seminal study (1989), it is first postulated that novices emphasize morphological attributes and experts combine

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morphological and functional traits when categorizing wild flora. Secondly, it is hypothesized that these expert-novice differences will manifest in the form of two separate classification systems. According to the cultural consensus model (Romney, Weller, and Batchelder 1986), consensus among respondents reflects cultural knowledge, whereby individuals with the most cultural competence or expertise are those who agree most with the rest of the group. If two classification systems exist, a consensus should be found among the experts as well as among the novices, but not for the combined set of expert-novice responses.

## Description of the Study Region

"Little Dixie" is the name given to the corridor of gently rolling farmland that straddles the Missouri River in the central section of the state. In an historical account of slavery and cultural life in Little Dixie, H. Douglas Hurt (1992) proposes a map of the area that includes Callaway, Boone, Cooper, Howard, Saline, Lafayette, and Clay counties[2] (Figure 1). Situated roughly between the corn belt and the Ozark Mountain region, Little Dixie represents a transition zone of the United States where the glaciated plains join the Interior Highlands to the south. The landscape is ecologically

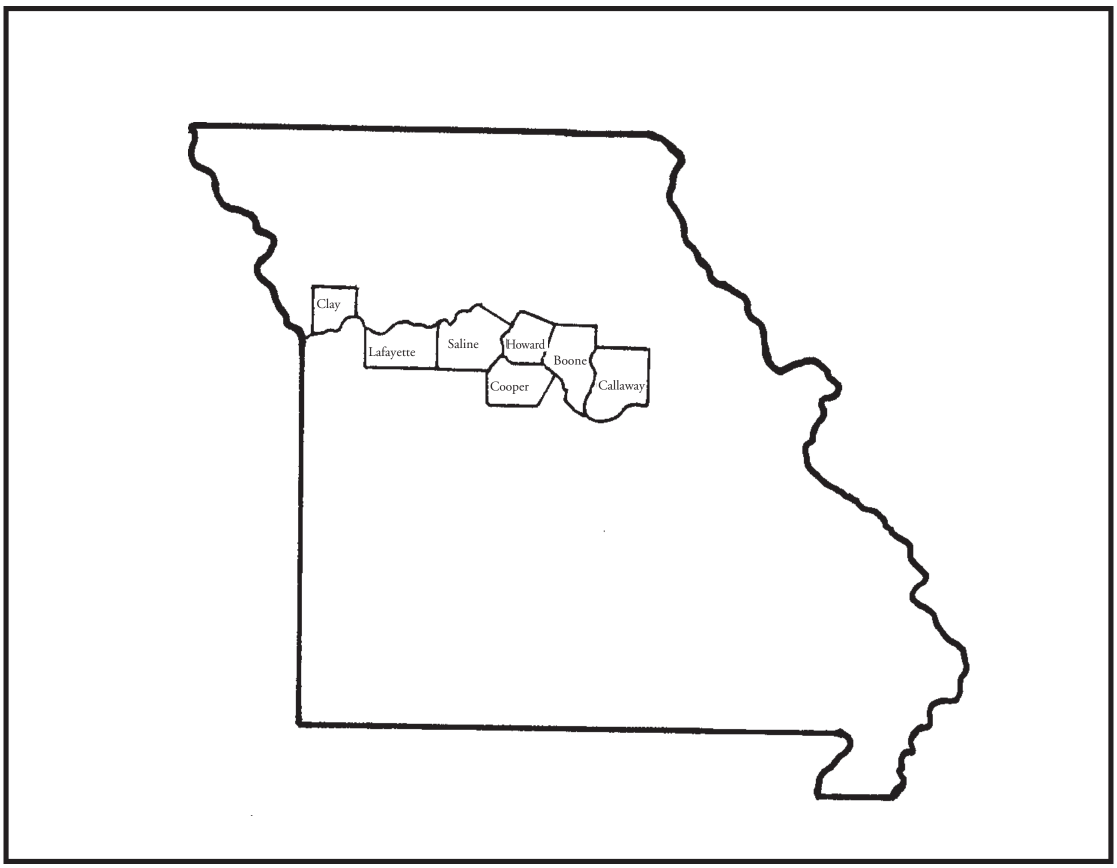


**Figure 1. Little Dixie counties of Missouri.**

[2] Folk cultural regions are, however, notoriously difficult to define geographically (Zelinsky 1992), and the boundaries of Little Dixie are no exception. In his insightful work *Folk Architecture in Little Dixie* (1981), Marshall's examination of the vernacular landscape positions Little Dixie slightly more north and east to include Randolph, Pike, Audrain, Monroe, and Ralls Counties, but excludes Clay and Lafayette Counties. To facilitate the analysis of county-level data, this study is based on Hurt's map of Little Dixie, which demarcates the boundaries of the region most clearly.

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diverse, and supports between 80 and 90 native plant species that are absent or rarely found elsewhere in the state (Yatskievych 1999). The region's physiographic character is one of rolling prairies, savannas, upland forests, and sandstone bluffs along the streams and rivers. Oak, hickory, and cedar predominate in the timbered hills and bluestem-dominated tallgrasses carpet the fields and savannas. Birch, maple, poplar, and willow are common along the bottomlands of the Missouri River and its numerous tributaries.

### *The Cultural Landscape*

Little Dixie has been described as "a section of central Missouri where Southern ways are much in evidence—an island in the Lower Midwest settled mostly by migrants from Virginia, Kentucky, Tennessee, and the Carolinas, who transplanted social institutions and cultural expressions to the new landscape" (Marshall 1979:400). Early emigrants from the Upland South arrived in Central Missouri after the War of 1812, but it was not until the mid-1800's that Little Dixie began to emerge as a distinct cultural region (Marshall 1981). Many of these settlers were prominent families whose plantations and fortunes were built around farming tobacco, hemp, cotton, and indigo across the farmlands of the Upper South. These wealthy aristocrats brought with them their Southern culture, including a plantation economy that involved the use of slaves and the sale of crops to the commercial market. Other settlers of Little Dixie included subsistence farmers, merchants, builders, and teachers who also originated from Kentucky and Virginia. While the Civil War brought an end to slavery and the plantation agricultural economy of Little Dixie, the tenacious Upper South cultural heritage has persevered in the lives and minds of its people. The distinctly Southern identity of Little Dixie is apparent today through the local dialect, antebellum architecture, foodways, traditional music, and the strong influence of the Democratic party (Hurt 1992; Crisler 1948; Marshall 1979, 1981). These folk practices "reflect those brought to the area by English, Scotch, and Irish farmers traveling along the Louis and Clark Trail from the Upland South" (Skillman 1988). Agriculture remains a strong component of the present-day economy in Little Dixie, where soybean, hay, wheat, corn, cattle, and hogs are commonly raised. The economic base has diversified considerably to include education, health care services, manufacturing, and a strong retail and wholesale industry, each of which has brought growth and progress to the region.

### *Wild Plants, Social Relations, and Group Identity*

Based on three summers of fieldwork, semi-structured interviewing and casual observation of daily life, it was observed that the people of rural Little Dixie are community-minded, yet very devoted to a lifestyle of relative independence. One of the ways in which people maintain and express their self-sufficiency is through the frequent and regular procurement of wild plants for a variety of purposes. Useful plants that grow wild locally are valued for their purity and wholesomeness, and, in some cases, for their rarity. Whether eaten as food, used as medicine, or valued aesthetically, wild plant procurement plays an important role in the social lives of both women and men in Little Dixie. The knowledge and work required in locating these wild plants from the outdoors and preparing them for use is developed over time by participating in family walks outdoors, helping out in the kitchen, and listening to the stories of mothers, fathers, and grandparents.

Depending on the season, persimmons, blackberries, strawberries, wild apples and the elusive pawpaws are gathered from the woods and used to bake pies or to cook jams and jellies. With these freshly gathered fruits, mothers will prepare homemade dishes and desserts for friends and family during the holidays. Pies, cakes, and breads are offered to neighbors in exchange for a favor or brought to church suppers, county fair contests, or cake walks at school parties. On sunny afternoons in early spring, local folks can be seen along roadsides gathering burdock, lambs quarters, pokeweed, and other greens that are boiled and eaten at suppertime. Others use the greens to prepare spring tonics, decoctions made by steeping combinations of herbs in boiling water, which are

taken as teas for their purgative, laxative, or invigorating properties.

There is special significance to the giving and taking of wild plant goods in Little Dixie. This process, and the knowledge it requires, represents part of one's identity as a member of the local culture. Procuring and sharing wild plant resources symbolizes a neighborly communion with the local landscape, the sharing of personal skill, effort, and craftsmanship, a reverence for traditional customs, and the expression of group identity.

### *Wild Plant Experts in Little Dixie*

During a pilot study conducted in Howard County in the summer of 1997, it was discovered that there are numerous wild plant experts residing in the area, whose botanical knowledge extends beyond that of the others described thus far. These folk experts include herbalists (both traditional and modern), medical practitioners, conservation activists, and local shopkeepers who market botanical paraphernalia such as herbal medicines, oils, and extracts. Some experts operate private herbal practices, others sell botanical products at stores or from their homes through mail-order businesses or have commercial contracts to cultivate selected species, while still others are simply local people—from farmers to schoolteachers—who are reputed to have exceptional knowledge of local flora. The presence of so many wild plant enthusiasts in Little Dixie can be attributed to several factors, including the recent commercialization of rural folkways (e.g., Tuleja 1997), the conservation of cultural traits concordant with the local farming economy (Marshall 1974, 1979; Skillman 1988), and the persistence of the Upland Southern tradition of wild plant collecting (Williams 1995, Nolan 1998).

## Sampling Expert and Novice Respondents

Because ethnobotanical knowledge is known to vary substantially among even the most experienced informants (e.g., Medin et al. 1997), a number of different "types" of experts and novices were consulted to ensure adequate knowledge representation. Ten experts and ten novices were selected by reputation (Martin 1995), followed by the "snowball" technique (Bernard 1994) in which one informant recommends another, who in turn recommends another, and so forth. Experts included males and females of mixed ages, with both commercial and noncommercial involvement in wild plant procurement, who have lived in Little Dixie for all or most of their lives. Novice respondents also included male and female Little Dixie natives of varying ages, but for whom wild plant collecting is neither a commercial activity nor a serious hobby. Participants in this study are mostly white Euro-Americans between 30 and 50 years of age, married, middle-class residents of the region. The ethnic and religious affiliations of the consultants reflect a blended Euro-American cultural heritage, with the Scotch-Irish comprising the principle group followed by a strong secondary German influence.

## Methods and Materials

In the summer and fall of 1999, a successive pile-sort task (Boster 1994) was administered to each of the expert and novice respondents.[3] Materials for the task included photographs of the 30 species named most frequently in a free-list task performed by these and other expert and novice consultants during the previous summer (see Table 1). Some of the photos used in the task were taken in the field, while others were reproduced professionally from the color plates of laboratory field guides (e.g., Kaye and Billington 1997; Foster and Duke 1990; Hunter 1984, 1989; Peterson 1977). Each photo was laminated with a plastic cover and labeled with the common folk name of the plant (e.g., wild cherry, morel). To perform the successive pile-sort, subjects were handed the stack of photos and asked to arrange them in as many piles of "things that go together" as he or she wished, based on any criteria deemed meaningful. After the first sort, respondents were instructed to examine their piles and to lump similar piles together to form (n-1) piles, where n is the original number of piles. This process was repeated until only one pile remained. Afterwards, the original piles were restored, and respondents were asked

[3]The successive pile-sort is a modification of the traditional pile-sort, which has been used fruitfully in a number of cultural domain studies (e.g., Furbee 1989, Medin et al. 1997).

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to begin splitting any pile that he or she thought could be further subdivided, to produce (n+1) piles. The process was repeated until no piles could be further subdivided.

The pile-sort data was examined using the software program Anthropac (Borgatti 1995). For each respondent, a plant-by-plant matrix was constructed in which cell values represented the number of times two plants were placed into the same pile. From these matrices, two aggregate plant-by-plant matrices were generated, one for the experts and another for the novices. The cells of these plant-by-plant aggregate matrices displayed the *total* number of times respondents sorted two plants into the same category. Multidimensional scaling was applied to both matrices to produce a spatial representation of similarity for the plants named by each group. A composite informant-by-informant correlation matrix was also composed and plotted with multidimensional scaling to identify patterns of agreement and consensus between the two respondent groups.

**Table 1. Wild plant species used in pile-sort task.**

| Common name | Scientific name | Family name |
|---|---|---|
| blackberry | *Rubus* spp. | Rosaceae |
| dandelion | *Taraxacum officinale* Weber. | Asteraceae |
| walnut | *Juglans* spp. | Juglandaceae |
| raspberry | *Rubus strigosus* Michx. | Rosaceae |
| sunflower | *Helianthus annuus* L. | Asteraceae |
| mulberry | *Morus rubra* L. | Moraceae |
| sassafras | *Sassafras albidum* (Nutt.) Nees. | Lauraceae |
| hickory | *Carya* spp. | Juglandaceae |
| gooseberry | *Ribes missouriense* Nutt. | Grossulariaceae |
| oak | *Quercus* spp. | Fagaceae |
| juniper | *Juniperus virginiana* L. | Cupressaceae |
| lambsquarters | *Chenopodium album* L. | Chanopodiaceae |
| cattail | *Typha latifolia* | Typhaceae |
| wild onion | *Allium stellatum* Ker. | Liliaceae |
| pine | *Pinus echinata* L. | Pinaceae |
| morel | *Morchella esculenta* L. | Morchellaceae |
| apple | *Prunus malus* L. | Rosaceae |
| persimmon | *Diospyros virginiana* L. | Ebenaceae |
| paw paw | *Asimina triloba* (L.) Dunal | Annonaceae |
| pokeweed | *Phytolacca americana* L. | Phytolaccaceae |
| wild mint | *Mentha arvensis* L. | Lamiaceae |
| wild strawberry | *Fragaria* spp. | Rosaceae |
| plantain | *Plantago major* L. | Plantaginaceae |
| wildcherry | *Prunus* spp. | Rosaceae |
| dewberry | *Rubus flagellaris* Willd. | Rosaceae |
| maple | *Acer saccharum* L. | Aceraceae |
| burdock | *Arctium minus* Bernh. | Asteraceae |
| wild plum | *Prunus americana* Marsh. | Rosaceae |
| purple coneflower | *Echinacea purpurea* (L.) Moench. | Asteraceae |
| willow | *Salix alba* L. | Salicaceae |
| goldenseal | *Hydrastis canadensis* L. | Ranunculaceae |
| jewelweed | *Impatiens pallida* L. | Balsaminaceae |
| may apple | *Podophyllum paltatum* L. | Berberidaceae |

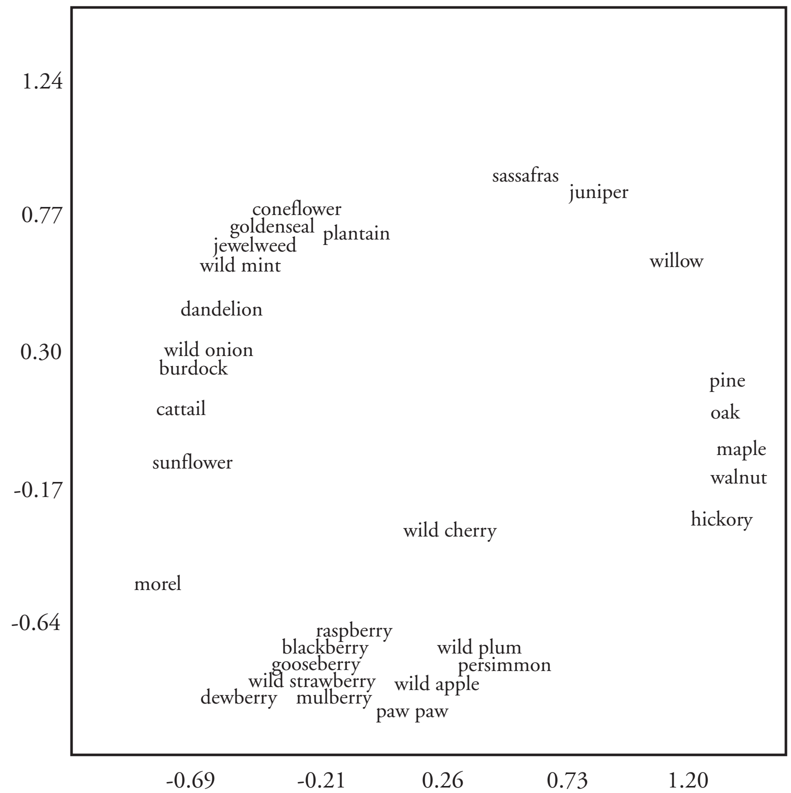


**FIGURE 2. MULTIDIMENSIONAL SCALING OF PLANTS PILE-SORTED BY EXPERTS (STRESS IN TWO DIMENSIONS IS 0.079).**

Cultural consensus analysis was applied to the pile-sort data using Anthropac's calculation tools to explore the degree of variation for the combined group and for novices and experts separately. To determine whether or not the data fits the model, a minimum residual factor analysis was then applied to an informant-by-informant correlation matrix, which displays the degree to which each informant agreed with every other informant in the study. When the cultural consensus model fits the data, a single-factor solution emerges, whereby no negative values appear on the first factor. Additionally, the largest eigenvalue is substantially higher than the second and third (Romney 1999). Each subject was also asked to describe his or her rationale for creating each category of plants in the pile-sort task. These responses were recorded, categorized, and converted into percentages. A comparison of these percentages offered additional qualitative data for identifying and interpreting the overall classification criteria (e.g., appearance, use, etc.) used by experts and novices.

## Results and Discussion

Multidimensional scaling reveals the contrast in sorting techniques used by experts and novices (Figures 2 and 3, respectively). A comparison of the two figures reveals some important differences between the two groups. As shown in the experts' plot (Figure 2), the plants were categorized according to a combination of morphological and functional attributes. There appears to be a herbaceous-woody dimension running from left to right across the scaling. Leafy herbs and flowers occur on the left side of the figure (e.g., dandelion, wild onion,

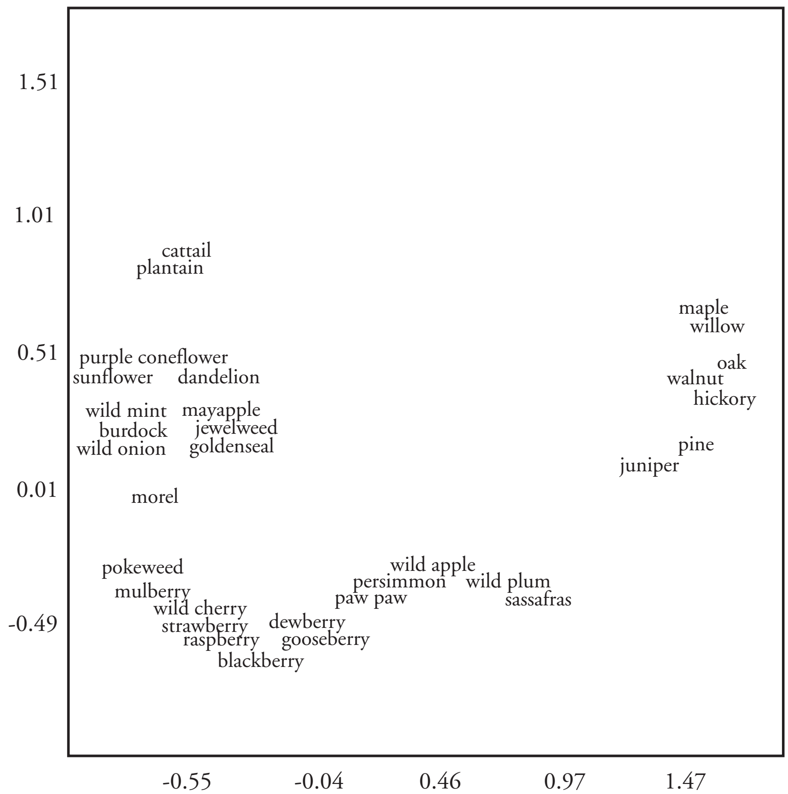


**FIGURE 3. MULTIDIMENSIONAL SCALING OF PLANTS PILE-SORTED BY NOVICES (STRESS IN TWO DIMENSIONS IS 0.040).**

burdock) while trees appear on the right (e.g., willow, pine, oak). Along this dimension, the berry-producing shrubs are clustered toward the middle (e.g., blackberry, raspberry). Also evident on the experts' plot is a vertical medicine-food dimension. Herbs and trees used primarily as medicines are found at the top (e.g., purple coneflower, plantain, sassafras, juniper) and the edible varieties occur toward the bottom (e.g., wild strawberry, persimmon, hickory). Positioned near the intersection of the two dimensions is wild cherry, valued for its edibility and medicinal qualities.

For the novices, the plot seems to reflect only one dimension—the herbaceous-woody distinction (Figure 3). The configuration is similar to the experts', but lacks the vertical functional dimension. The novice emphasis on perceptual cues and distinctive growth forms can be seen in the clusters of nut-bearing trees to the extreme right (e.g., oak, walnut, and hickory), and the pairing of the stalk-bearing cattail and plantain on the upper left of the scaling. Novices seem to "chunk" morphological traits into perceptual structures—or *essences*, as Atran (1990) calls them—when categorizing plants. In doing so, the novices come closest to the scientific classification scheme. In fact, their system recognizes taxonomic families, such as the Asteraceae, represented by dandelion, purple coneflower, and sunflower. Members of the Asteraceae are characterized by circular clusters of flowers with uniform centers and petal-shaped outer flowers. Furthermore, novices frequently paired the nut-bearing walnut and hickory together, both of which belong to the family Juglandaceae; they also paired the coniferous pine and juniper, members of the subdivision Pinacae. Interestingly, many of these

associations were constructed as covert categories in which consultants explained that they were not quite certain why they sorted these items in the same pile, but that they simply "belonged together," as discussed below. The anomalous morel appears by itself, in between the group of flowering herbs (e.g., goldenseal, wild onion, etc.) and the cluster of berry-producers (e.g., pokeweed, mulberry, etc.).

### *Explanations of the Pile-Sorts*

At each stage of the successive sorting task, respondents were asked to describe the reasons behind their sorting decisions. These explanations provide further qualitative evidence for the claim that experts use both appearance and function to classify plants while novices rely chiefly on appearance alone. Some 56 percent of the explanations cited by experts were linked to the use of the plant. Experts would often describe specific uses for groups of plants (e.g., "nice to put in salads," "strong bases for spring tonics," or "excellent firewood"). Twenty nine percent of the experts' reasons were morphological, in which piles were labeled as "trees with soft wood," or "trees that lose their leaves." Eight percent of the reasons dealt with plant habitat or growth patterns (e.g., "these plants bear fruit in early summer") and the remaining 7 percent combined any of the above reasons together (e.g., "only the young shoots of these plants can be eaten," or "shrubs with sour-tasting berries"). By contrast, 79 percent of the explanations reported by novices were morphological, and usually based on simple features such as color (e.g., "herbs with small white flowers"), foliage (e.g., "trees with evergreen leaves"), or combinations of salient physical characteristics (e.g., "shrubby plants with clumps of berries"). Nine percent of the novices' sorting reasons were based on simple use patterns, usually ornamental (e.g., "these would make a nice table arrangement"). Covert features comprised 7 percent of the explanations (e.g., "I don't know, they just seem like brothers"). Finally, a lack of familiarity comprised the remaining 5 percent of the novices' explanations, including cases in which respondents were unable to classify the plants or had never encountered them before (e.g., "I've heard of these plants but I have no idea where they belong in these piles").

### *Differences and Similarities between Expert and Novice Sorting Patterns*

To identify which species were sorted the most differently by experts and novices, the aggregate respondent-by-plant matrix for the novices was subtracted from the aggregate matrix for the experts. In each of these matrices, the cell values represented the percentage of sorts in which two items were placed in the same pile. The matrix that resulted from the subtraction was converted to absolute values to reveal pairs of species that were sorted most differently by the two groups. Table 2 displays the seven pairs of plants with the highest percent difference in sorting similarity. Those species

**TABLE 2. EXPERT-NOVICE DIFFERENCES IN SORTING WILD PLANTS.**

Items grouped more frequently by experts than novices

| Species pair | | % difference | Reason for grouping |
|---|---|---|---|
| wild onion | pokeweed | 0.45 | cooked and eaten together |
| wild mint | purple coneflower | 0.43 | used for spring tonics |
| goldenseal | sassafras | 0.43 | used for spring tonics |

Items grouped more frequently by novices than experts

| Species pair | | % difference | Reason for grouping |
|---|---|---|---|
| sunflower | purple coneflower | 0.57 | shape of flower |
| sunflower | dandelion | 0.54 | shape of flower |
| sassafras | pokeweed | 0.52 | color and shape of berries |
| willow | maple | 0.51 | shape of leaves (willow) |

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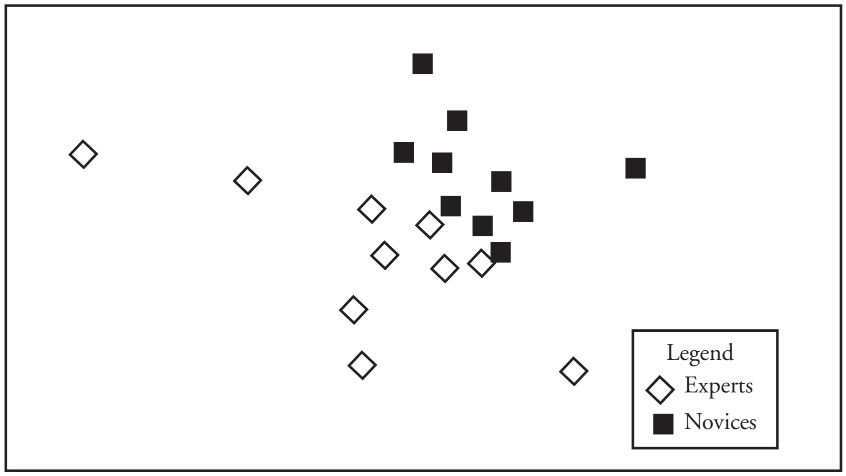


**Figure 4. Multidimensional scaling of successive pile-sort responses by experts and novices (n=20).**

judged as similar by novices, but different by experts, include those with similar morphological attributes, such as sunflower and dandelion, and sassafras and pokeweed. Reasoning that these species share similar appearances (e.g., common flower shape, presence of berries), novices frequently sorted these species together, while experts did not. For experts, sassafras is considered a strong medicine, useful in the decoction of spring tonics, while pokeweed is valued as a salad food. On the other hand, experts frequently sorted wild onion and pokeweed together, deemed similar because they are commonly gathered and eaten together as wild greens in the springtime. Sharing few obvious visible similarities, these plants were judged as dissimilar by novices.

There are several pairs of plants that were classified similarly for both groups. The brambles, for example, which include blackberry, dewberry, raspberry, and others, were categorized together for experts and novices alike. However, this observation raises two important points: one, that form and function can be inherently related, as found among the edible berries; and two, that two groups may use different criteria even though they sort items similarly (e.g., Boster and Johnson 1989). For instance, experts explained the similarity between wild plum and wild apple in terms of their similar habitats and uses in pies and jellies; novices attributed their sameness to the common shape of their fruits. Further, while experts and novices each recognize a kinship between may apple, jewelweed and goldenseal, the experts sorted them on the basis of common medicinal properties, while novices classified them together because of the similarity in the color and pattern of their flowers. In sum, it appears that plants sharing common uses or applications are considered similar by experts, but not by novices. Plants that share a high overall perceptual affinity are judged similarly by novices and, to a lesser extent, by experts as well.

### *Cultural Consensus Analysis*

Unexpectedly, it was found that the cultural consensus model does in fact fit the combined expert-novice response set. The scores on the first three eigenvalues are 8.029, 2.078, and 1.294, yielding a ratio of 3.864 between the first and second and 1.606 between the second and third. These results suggest that experts and novices share a single classification system. However, when the model is applied to each respondent group separately, the model fits nicely with the novices' responses, but not the experts', indicating that novices used a more consistent, highly shared classification strategy than the experts. Further, when multidimensional scaling is applied to the aggregate informant-by-informant correlation matrix (Figure 4), the novices are clustered more closely to one another than the experts, who are in gen-

eral more widely dispersed. While novices and experts form their own respective groupings, the "core" cluster for the entire respondent set is comprised of both experts *and* novices, further demonstrating the existence of a common classification system.

These findings contrast with those found by Garro (1986) who used a frame-substitution task to investigate knowledge variation among folk curers and non-curers in rural Mexico. Garro reported higher consistency and agreement among experts, and considerably less agreement among non-experts. Similarly, when Boster (1986) used a manioc identification task to examine patterns of knowledge variation among the Aguaruna Jívaro, he found higher agreement among the experts in his study. The disagreement between this study and the aforementioned can be understood in terms of the differences in experiment design. In both Garro's and Boster's studies above, the non-experts had no information available to them when formulating their responses, resulting in a wide range of idiosyncratic responses. Boster and Johnson later recognized this pattern, noting that "novices would show more variation around the cultural consensus than domain experts because they have no model to constrain their responses" (1989:882). In the present study, however, novices were provided with visual cues in the form of color photographs, from which a morphological model was extracted. Accordingly, the use of this model generated consistency among their responses.

When Boster and Johnson (1989) used pilesorts to examine the classification of marine fish among expert fishermen and a novice control group, they also discovered less agreement among their experts. The authors believe this pattern to be a reflection of the various types of knowledge mastered by experts:

> Because experts control more different kinds of knowledge and offer more varied justifications for their responses than do novices, they might be expected to be more variable in their responses than the novices. (Boster and Johnson 1989:877)

The results described here also support the notion that experts command a greater diversity of information regarding the role and value of wild flora, which provides them with more alternatives for constructing taxonomies. When interest and skill increases with respect to a domain of knowledge, the kinds of information one possesses become more distributed and manifold. For instance, when a person begins to accumulate more and more plant knowledge, they consequently learn new approaches to categorizing plants and making inferences about them. As Medin and his colleagues assert, "different goals, activities, and knowledge may well lead to distinct hierarchical structures—fundamentally different ways of organizing nature" (1997:53).

Cognitive anthropological research has noted that the acquisition of expertise entails a movement from imagistic recognition to more abstract discrimination strategies[4] (e.g., Kempton 1981, Chick and Roberts 1987). The apparent shift from simple to complex classification strategies probably explains why the experts show less intergroup agreement than the novices, who are forced to restrict their criteria to essentially perceptual attributes. One rather surprising consequence of this restriction is a higher level of agreement among novices, which, according to the consensus model, mistakenly characterizes them as more knowledgeable than experts. The pattern reported here urges a word of caution for researchers who could misinterpret patterns of intergroup agreement as evidence for competence or expertise. As demonstrated by the novices in this study, agreement may simply reflect the sharing of a simple, imagistic style of classifying things. Though agreement is characteristic among experts, it can also indicate a common naïvete, or knowledge gap, among the less informed.

### *Expert Knowledge Variation in Little Dixie*

To fully understand why the experts in this study deviate from the consensus, the ethnographic context of Little Dixie must be reconsidered. At

[4] This progression has been noted in a number of studies, ranging from expert-novice categorization of physics problems (Chi, Feltovich, and Glaser 1981) and X-ray pictures (Lesgold et al. 1988), to studies of how connoisseurs and amateurs classify wine (Solomon 1997) and art (Hekkert and Van Wieringen 1997).

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first glance, the experts of this regional culture may seem to be a rather homogenous group, but in actuality they represent a very diverse assemblage of botanical specialists. While most of them are socially acquainted with one another through common membership in horticultural societies, gardening clubs, and through the local university extension, their plant knowledge, experience, and priorities are quite varied. For instance, some experts specialize in traditional Euroamerican plant uses, and have acquired most of their knowledge over the years from their parents and grandparents with shared interests. Some experts focus almost entirely on contemporary New Age uses for wild herbals, having learned about wild plants as children growing up on nearby hippie communes during the 1960s and 70s. Others are formally educated commercial plant merchants, who acquired university training in botany and have returned to Little Dixie to practice their craft in organic supply shops and botanical mail-order services. The various pathways by which these respondents have acquired their expertise have undoubtedly resulted in different beliefs, goals, and priorities with respect to wild plants and their cultural uses. Differences in cognitive orientations toward plants could further explain the relative disparity among the experts' responses to the pile-sort task. Obviously, additional investigation is necessary in order to assess precisely how specific subtypes of expertise relate to the cognitive organization of the wild plant domain.

## Summary and Conclusion

Concordant with the first hypothesis, it is shown in this paper that experts base their similarity judgements on a combination of utilitarian and morphological attributes, while novices rely generally on easily observed form features. Put another way, experts group plants according to shared uses or common applications, while novices consider plants with high perceptual affinity to be more fundamentally related. Contrary to the second hypothesis, however, a single classification system underlies the responses of experts and novices. Even though experts and novices use different reasoning strategies for sorting plants, the cultural consensus model reveals the presence of a shared categorization system, reflecting the experts' and novices' common reliance on morphological attributes when constructing ethnobotanical categories. Further, the experts agreed less with each other and thus displayed less consensus than novices. This pattern could be explained in the same way that Boster and Johnson (1989) interpreted their similar findings—that experts possess a broader knowledge and a more complex frame of reference, resulting in a higher level of variation among their responses. The novices agreed more with one another, and thus displayed more competence because they are limited to morphological criteria when classifying plants. Moreover, the wild plant experts of Little Dixie have acquired their knowledge from a variety of sources and therefore interact with plants in different ways, which also accounts for the differences in their classification patterns.

The results presented here support the previous findings regarding the classification of faunal domains (e.g., Boster and Johnson 1989, Boster, Berlin and O'Neill 1986), further suggesting that the acquisition of new information about the natural world results in alternative classification strategies. Taken in concert with previous research in cognitive anthropology, these results demonstrate that experience and learning generate a psychological shift from the recognition of perceptual attributes to the assimilation of functional attributes. In the movement from naïveté to expertise, the perceptual model is built upon—but not entirely replaced—by the functional model. In short, it appears to be true that humans process information about different ethnobiological domains in cognitively similar ways.

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