PURSING THE FRUITS OF KNOWLEDGE: COGNITIVE ETHNOBOTANY IN MISSOURI'S LITTLE DIXIE

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ABSTRACT.—This study investigates ethnobotanical knowledge variation in Little Dixie, a folk cultural region in Central Missouri. Data were obtained from twenty “experts” and twenty “novices” who free-listed the names and uses for wild plants and rated them according to cultural usefulness, ecological value, beauty, and overall appeal. It is hypothesized and demonstrated that novices privilege species that are perceptually distinctive and ecologically abundant, while experts emphasize species with high use potential. Accordingly, novices emphasize beauty, a form-based variable, in their evaluation of listed species, while experts emphasize cultural utility, a function-based variable. These results suggest that the acquisition of ethnobotanical expertise entails a shift from morphological, imagistic information processing to the cognitive assimilation of abstract, utilitarian factors gained through learning and cultural experience.

Key words: folk biology, cognition and expertise, free-listing, U.S. regional cultures.

RESUMEN.—Este trabajo investiga la variación del conocimiento etnobotánico en Little Dixie, una región cultural popular en Misuri central. Los datos se obtuvieron de veinte “expertos” y veinte “novatos” que escribieron una lista al azar de los nombres y los usos de plantas silvestres y las calificaron de acuerdo a la utilidad cultural, valor ecológico, belleza, y el atractivo general que tienen. Se hace hipótesis y se demuestra que los novatos privilegian las especies de plantas que son perceptualmente distintivas y ecológicamente abundantes, mientras los expertos hacen hincapié en las especies que tienen potencial alto de utilidad. Como corresponde, los novatos acentúan la belleza, una variable basada de forma, en su evaluación de especies puestas a lista, mientras los expertos ponen énfasis en la utilidad cultural, una variable basada de la función. Estos resultados sugieren que la adquisición de competencia etnobotánica conlleva un cambio morfológico, procesamiento de información basada de imágenes a la asimilación cognitiva del resumen, factores utilitarios ganados por el aprendizaje y la experiencia cultural.

RÉSUMÉ.—Cette étude examine la variation de connaissances ethnobotaniques dans le Little Dixie, une région culturelle du Missouri central. Les données ont été obtenues de vingt “experts" et vingt “novices” qui ont énuméré les noms et les usages de plantes sauvages et les ont évaluées selon leur utilité culturelle, leur valeur écologique, leur beauté, et leur attrait général. Il est démontré que les novices privilégient les espèces qui sont perceptuellement distinctes et abondantes dans l’environnement alors que les experts prêtent davantage attention aux espèces qui ont un usage potentiel élevé. En conséquence, les novices soulignent la beauté, une variable basée sur la forme, dans leur évaluation des espèces énumérées alors que les experts soulignent l’utilité culturelle, une variable basée sur
la fonction. Ces résultats suggèrent que l'acquisition d'expertise éthno-botanique présuppose une modification allant du traitement morphologique et imagé de l'information à l'assimilation de facteurs abstraits et utiles grâce à l'étude et à l'expérience culturelle.

INTRODUCTION

Ethnobiological knowledge is a complex phenomenon based fundamentally on human recognition of the perceptual and functional attributes that characterize living things. Over the past two decades, considerable progress has been made toward understanding how people transform their natural worlds into meaningful cultural categories (e.g., Brown 1984, Hunn 1982, Berlin 1992, Medin and Atran 1999, Ford 2001, etc.). Relatively neglected, however, is the study of variation within ethnobotanical knowledge systems. Research indicates that the differences in how people perceive biological domains are related to levels of respondent expertise, whereby experts have access to more kinds of information about a domain than do novices, resulting in different patterns of domain organization. For instance, Boster and Johnson (1989) demonstrate that novices rely on mostly morphological cues when learning about and classifying marine fishes, while experts make use of morphological signals in addition to utilitarian information gained through personal experience. However, it remains yet undetermined whether or not experts and novices emphasize common referential features in their conceptualization of plants or if they maintain separate patterns of ethnobotanical cognition. To answer the question, this project will explore the structure of ethnobotanical knowledge among residents of a regional culture in the U.S. Midwest.

SCOPE OF THE STUDY

A defining feature of expertise is the ability to recognize and process multiple kinds of information about a cognitive domain. For example, becoming an expert usually entails commanding a diversified understanding of how things can be used practically or categorized cognitively. This is true for the rare coin expert, who knows the salient features to examine when appraising unusual currency, and for the wild plant expert, who is aware of the numerous cultural uses for local flora. Furthermore, cognitive anthropological research has noted that the acquisition of expertise brings about a gradual shift in the learning process itself. That is, novices demonstrate highly imagistic recognition and respond more readily to easily perceptible morphological features when describing a domain. Experts, on the other hand, utilize more abstract systems of discrimination and emphasize the less obvious utilitarian features when evaluating items (e.g., Boster and Johnson 1989, Chick and Roberts 1987, Kempton 1981). This progression has been noted in a number of related psychological studies, ranging from expert-novice understanding of physics problems (Chi et al. 1981) and X-ray pictures (Lesgold et al. 1988), to studies of how connoisseurs and amateurs appreciate wine (Solomon 1997) and art (Hekkert and Van Wieringen 1997).

Two hypotheses stem from these collective findings. Given the presumed differences in how experts and novices approach and process information about
a domain, it follows that novice and expert plant users emphasize different focal attributes in their cognitive articulation of wild botanicals. That is, novices are expected to prioritize species that are perceptually distinctive and ecologically abundant, while experts should focus on species with salient use potential. Secondly, it is proposed that novices prioritize beauty, a form-based variable, in their appreciation of plants, and that experts emphasize utility, a function-based variable, in their plant evaluations.

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, R. Douglas Hurt (1992) proposes a map of the area that includes Callaway, Boone, Cooper, Howard, Saline, Lafayette, and Clay counties (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 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). Many of the early migrants 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 plantation life in Little Dixie, the tenacious Upper South cultural heritage has persevered in lives and minds of the 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 (Crisler 1948; Marshall 1979, 1981; Skillman 1988; Hurt 1992). 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.—The people of Little Dixie are 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. A number of local species are valued for their purity and wholesomeness, and, in some cases, for their rarity. Whether enjoyed as food, taken as medicine, or valued aesthetically, wild plant procurement plays an important role in the social lives of the women and men of Little Dixie. The knowledge and work required in locating these plants from the outdoors and preparing them for personal 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. 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.

METHODS AND MATERIALS

In order to examine the patterns of variation in ethnobotanical knowledge and classification in Little Dixie, 20 experts and 20 novice (non-expert) consultants were selected from the seven counties within Little Dixie’s borders. Most of the respondents were selected from Howard, Boone, and Callaway Counties, which constitute the cultural and geographic locus of the region. Howard County boasts a growing reputation as both a center for commercial plant growers and a hub for local herbalists. At least one expert and one novice respondent was consulted from each of Little Dixie’s seven counties. Botanical knowledge has been shown to vary substantially among expert consultants (e.g., Medin et al. 1997). Therefore, to ensure an adequate representation of different types, experts in the sample
included both males and females with both commercial and non-commercial interests in wild plant use. Some experts operate private herbal practices, others sell botanical products at stores or from their homes through mail-order business or have contracts to cultivate selected species, while others are simply local people—from farmers to schoolteachers—who have exceptional knowledge of local flora. Novices also included male and female Little Dixie natives of mixed ages, but for whom wild plant collecting is neither a commercial activity nor a serious hobby. Both expert and non-expert consultants were selected by reputation (Martin 1995), followed by the “snowball” technique (Bernard 1994) in which one respondent recommends another, who in turn recommends another, and so forth.

Using the same interview protocol for experts and novices, both groups were consulted during interviews that spanned from the summer of 1997 to the fall of 1999. Interviews consisted of a semi-structured interview containing open-ended questions, free-listing, and a sociodemographic survey. To begin the interview, consultants were casually queried about their personal experience with local flora. Questions included "how did you come to know about wild plants?" and "what do you find meaningful about using wild plants?". The first section of the survey included a free-list task (Weller and Romney 1988, Bernard 1994), an effective elicitation tool for ethnobotanists (Martin 1995, Cotton 1996). Respondents were asked to write down the names of as many kinds of locally available, useful wild plants as they could think of, using their own judgment of what is considered useful. Respondents were then asked to indicate how each plant is used (e.g., medicinal, edible, ornamental, etc.), the specific application for the plant (e.g., pie filling, heartburn remedy, etc.), the part of the plant that is used (e.g., stem, root, etc.), and the mode of preparation (e.g., air-dried, boiled in water, etc.). This data collection process, known as successive free-listing (Ryan et al. 2000), provides a rich, descriptive database for examining plant use patterns, and has been used in a number of ethnobotanical surveys.

There is reason to believe that experts and novices exhibit different expressive and aesthetic evaluations of the constituents of semantic domains (e.g., Chick and Roberts 1987), which may in turn effect how domains are organized cognitively (Nolan and Robbins 2001). To explore these differences, a rating exercise was administered with the free-list task in which respondents of both groups were asked to assign a number between one and five to each named plant based on the evaluation of four different variables: overall appeal, usefulness, ecological value, and beauty. The mean ranks were calculated on all four variables for the most commonly mentioned plants, and a multiple correlation analysis was performed on these ranks to determine how the two groups compare in their conceptual evaluation of salient species.

RESULTS

Analysis of the Free-Lists.—Of the 187 plant names collected from both groups, experts listed a total of 160 plants, comprising 85.6% of the composite list. For the experts, list lengths ranged from 12 to 61 plant names, with a median of 25.5. The mean list length was 26.4 plant names, with a standard deviation of 13.3 and a coefficient of relative variation (CRV) of .504 (see Table 1 for a quantitative
TABLE 1.—Number of wild plants and applications reported by experts and novices.

<table>
<thead>
<tr>
<th></th>
<th>Number of plants mentioned</th>
<th>Number of applications listed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experts</td>
<td>Novices</td>
</tr>
<tr>
<td>Mean</td>
<td>26.7</td>
<td>9.1</td>
</tr>
<tr>
<td>Median</td>
<td>25.5</td>
<td>8.5</td>
</tr>
<tr>
<td>S.D.</td>
<td>13.3</td>
<td>3.8</td>
</tr>
<tr>
<td>Maximum</td>
<td>61</td>
<td>17</td>
</tr>
<tr>
<td>Minimum</td>
<td>12</td>
<td>5</td>
</tr>
</tbody>
</table>

summary of free-list results, and Appendix 1 for an inventory of all listed species and uses). The total number of applications for wild plants listed by experts was 749, representing 77.2% of the total. The number of applications listed ranged from 14 to 88, with a median of 36. On average, experts listed 37.4 applications with a standard deviation of 18.9 and a CRV of .505.

Novices listed a total of 79 wild plant names, constituting 42.2% of the composite plant listing. The length of the novices' plant lists ranged from 5 to 17, with a median of 10.5. The mean list length was 11.4 with a standard deviation of 3.8 and a CRV of .333. Novices listed a total of 221 applications for wild plants, or 22.8% of the total inventory. These applications ranged in number from 5 to 21, with a median of 10.5. The mean number of listed applications for novices was 11.1, with a standard deviation of 4.9 and a CRV of .441. A comparison of the two groups reveals, as expected, a higher mean number of plants free-listed by the expert consultants. The difference in means, 26.4 plants listed by the experts and 11.4 for the novices, is statistically significant (t = 5.4, P < .001). Statistical significance was also found for the difference in the mean number of applications reported, 37.4 for experts and 11.1 for novices (t = 6.02, P < .001). Figure 2 graphically displays the positive correlation between the number of plants and the number of applications reported by both groups. As shown in Figure 2, knowledge of plant utilization rises incrementally with an increase in plant-naming knowledge for both consultant groups. The number of plants named and the number of applications reported are significantly correlated for novices (r = .87, p < .001) and experts (r = .91, p < .001). While there is some overlap between the level of ethnobotanical knowledge demonstrated by the two groups, the expert-novice distinction is reasonably clear, as indicated by the dispersal of data points on Figure 2.

The Salience of Listed Plants.—The B values given in Table 2 measure free-list salience, or the proportional precedence of a listed plant over others. B is computed as follows:

\[ B = \frac{n(n + 2\bar{n} + 1) - 2 \sum r(n)}{2n\bar{n}} \]

where n is the number designated subset items, \( \bar{n} \) is the number of complement designated subset items and \( \sum r(n) \) is the sum of the free list ordered ranks of the designated subset items (Robbins and Nolan 1997). Here, a B value was computed for each plant free-listed by experts and novices. To calculate individual salience
values for a given plant on a free-list, \( n = 1 \) and \( \bar{n} = (\text{the total number of listed items}) - 1 \). Ranging between 0 and 1, the \( B \) value for a given item reflects the relative proportion of other items it precedes on the list. The \( B \) value for each species was summed across all lists and divided by the number of respondents listing the plant to generate a composite \( B \) value. To calculate a measure of overall cultural significance, the composite \( B \) value for each listed species was added to the proportion of respondents listing the plant and divided by 2.

As seen in Table 2, there are more plants with higher frequencies of mention on the experts’ inventories than among the novices’. Consider, for example, the three plants mentioned most frequently by experts—blackberry, dandelion, and walnut, which were listed by 18, 15, and 14 experts, respectively. These frequencies are high compared to the three plants mentioned most commonly by novices—raspberry, dandelion, and blackberry, which were listed by only 12, 12, and 11 novices, respectively.

Interestingly, three of the five most frequently mentioned species (blackberry, dandelion, and walnut) are the same for experts and novices. All three of these plants can be used in a number of practical ways. For instance, walnut is a valuable source of food, medicine, lumber, and dyes. Blackberry is also highly venerated for its edible berries, known locally and in the Ozark Mountains to the south as “black gold,” and for the food value of its young shoots and its medicinal roots that are often brewed into healing tonics to treat colds, fevers, and colic.
TABLE 2.—Frequency and salience of plants commonly listed by experts and novices.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Plant name</th>
<th>Freq.</th>
<th>%</th>
<th>B</th>
<th>Plant name</th>
<th>Freq.</th>
<th>%</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Blackberry</td>
<td>18</td>
<td>0.9</td>
<td>0.579</td>
<td>Raspberry</td>
<td>12</td>
<td>0.6</td>
<td>0.35</td>
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<tr>
<td>2</td>
<td>Dandelion</td>
<td>15</td>
<td>0.75</td>
<td>0.434</td>
<td>Dandelion</td>
<td>12</td>
<td>0.6</td>
<td>0.498</td>
</tr>
<tr>
<td>3</td>
<td>Walnut</td>
<td>14</td>
<td>0.7</td>
<td>0.345</td>
<td>Blackberry</td>
<td>11</td>
<td>0.55</td>
<td>0.404</td>
</tr>
<tr>
<td>4</td>
<td>Gooseberry</td>
<td>13</td>
<td>0.65</td>
<td>0.379</td>
<td>Walnut</td>
<td>11</td>
<td>0.55</td>
<td>0.243</td>
</tr>
<tr>
<td>5</td>
<td>Sassafras</td>
<td>13</td>
<td>0.65</td>
<td>0.377</td>
<td>Mulberry</td>
<td>10</td>
<td>0.5</td>
<td>0.241</td>
</tr>
<tr>
<td>6</td>
<td>Lamb’s quarters</td>
<td>12</td>
<td>0.6</td>
<td>0.338</td>
<td>Sunflower</td>
<td>10</td>
<td>0.5</td>
<td>0.25</td>
</tr>
<tr>
<td>7</td>
<td>Hickory</td>
<td>12</td>
<td>0.6</td>
<td>0.33</td>
<td>Pine</td>
<td>9</td>
<td>0.45</td>
<td>0.225</td>
</tr>
<tr>
<td>8</td>
<td>Pokeweed</td>
<td>11</td>
<td>0.55</td>
<td>0.272</td>
<td>Cattail</td>
<td>9</td>
<td>0.45</td>
<td>0.187</td>
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<tr>
<td>9</td>
<td>Plantain</td>
<td>11</td>
<td>0.55</td>
<td>0.315</td>
<td>Daisy</td>
<td>6</td>
<td>0.3</td>
<td>0.136</td>
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<td>10</td>
<td>Persimmon</td>
<td>10</td>
<td>0.5</td>
<td>0.302</td>
<td>Wild onion</td>
<td>6</td>
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<td>0.17</td>
</tr>
<tr>
<td>11</td>
<td>Wild mint</td>
<td>10</td>
<td>0.5</td>
<td>0.271</td>
<td>Maple</td>
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<td>Dewberry</td>
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<tr>
<td>13</td>
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<td>0.212</td>
<td>Wild apple</td>
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<td>Oak</td>
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<tr>
<td>15</td>
<td>Burdock</td>
<td>9</td>
<td>0.45</td>
<td>0.265</td>
<td>Black-eyed Susan</td>
<td>4</td>
<td>0.2</td>
<td>0.093</td>
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<tr>
<td>16</td>
<td>Raspberry</td>
<td>9</td>
<td>0.45</td>
<td>0.324</td>
<td>Wild strawberry</td>
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<td>0.2</td>
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<tr>
<td>17</td>
<td>Morel</td>
<td>8</td>
<td>0.4</td>
<td>0.138</td>
<td>Marijuana</td>
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<td>0.2</td>
<td>0.128</td>
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<tr>
<td>18</td>
<td>Wild onion</td>
<td>8</td>
<td>0.4</td>
<td>0.21</td>
<td>Sassafras</td>
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<td>0.2</td>
<td>0.084</td>
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<tr>
<td>19</td>
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<td>8</td>
<td>0.4</td>
<td>0.141</td>
<td>Sassafras</td>
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<td>0.2</td>
<td>0.084</td>
</tr>
<tr>
<td>20</td>
<td>Wild grape</td>
<td>8</td>
<td>0.4</td>
<td>0.2</td>
<td>Goldenseal</td>
<td>3</td>
<td>0.15</td>
<td>0.074</td>
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<tr>
<td>21</td>
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<td>0.4</td>
<td>0.154</td>
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<td>0.15</td>
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</tr>
<tr>
<td>22</td>
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<td>8</td>
<td>0.4</td>
<td>0.232</td>
<td>Wild cherry</td>
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<tr>
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<td>0.177</td>
<td>Wild rose</td>
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<td>0.114</td>
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<td>24</td>
<td>Paw paw</td>
<td>7</td>
<td>0.35</td>
<td>0.221</td>
<td>Honeysuckle</td>
<td>3</td>
<td>0.15</td>
<td>0.088</td>
</tr>
</tbody>
</table>

The dandelion is similarly edible; its young leaves and flowers are eaten by both humans and animals, and like the others, it is used regionally in medicinal tonics to treat chills and fevers. Well-known even by those with minimal interest in local flora, it is no surprise to find these species at the top of the list for the novices as well as the experts.

Most interesting, however, are the differences between the two sets of respondents. As seen in Table 2, certain plants are cognitively privileged by one group or the other. Among those plants mentioned frequently by novices, but not by experts, are pine, cattail, daisy, maple, wild apple, and honeysuckle. Similarly, several plants appear exclusively on the experts' inventory, including lamb's quarters, gooseberry, dewberry, plantain, persimmon, and burdock. One explanation for this pattern is the novice predilection for listing plants with high perceptual and ecological salience (e.g., Turner 1988). Plants that are morphologically distinct, bearing obvious physical features (e.g., pine, daisy, cattail) tend to be listed frequently among the untrained. Further, these species are, in general, widely available in the ambient environment. For the most part, novices need not roam far to encounter them. Thus, the perceptual distinctiveness and ecological abundance of these species probably accounts for their high frequency of mention among novice consultants.

On the other hand, species with relatively higher free-list frequency among the experts (e.g., lamb's quarters, plantain, burdock) lack the easily distinguishable
features that characterize species with high perceptual salience. Weed-like herbs such as these are not immediately obvious to the untrained eye. Nonetheless, they are emphasized cognitively by the experts who are knowledgeable about their practical uses. To illustrate, the leaves of lambsquarters and burdock are prized for their flavor, edibility, and nutrient value, and plantain leaves are used extensively by experts as a bandage or a poultice for exterior wounds.

The Diversity of Wild Plant Knowledge.—Figure 3 displays the number of reports of use for all wild plant species named by experts and novices in the free-listing task. While the overall knowledge pattern for experts and novices is similar, this abundance diagram conveys an interesting pattern that seems to characterize the plant knowledge of the two groups. That is, experts demonstrate a higher dispersal of knowledge, which is reflected by the higher number of unique, once-mentioned species listed among them. As shown on the diagram, considerably more plants were reported by a single expert (93 species) than were mentioned by a single novice (39 species). There are fewer instances in which several novices listed the same plant. Alternately, experts demonstrate a higher overlap of listed items. The overall pattern suggested by the abundance diagram is one in which experts have command of a greater diversity of plant knowledge than novices, resulting in both a higher proportion of collective, commonly shared knowledge and a higher level of esoteric, idiosyncratic knowledge in the form of once-mentioned species.
From a qualitative perspective, the differences between the experts' and novices' free-lists are also considerable. To determine the overall extent of free-list similarity, the number of positive matches between listed items was calculated for experts and novices in order to compare the two groups. The resulting coordinates were plotted using multidimensional scaling, or MDS, using the software package ANTHROPAC 4.95 (Borgatti 1998). MDS is a useful technique for visualizing the relations between points or items, whereby points that are closer to each other in two-dimensional space are thought to be more similar than points that are distant.

Figure 4 shows the MDS graphic for the experts' and novices' free-list responses, illustrating the degree to which all respondents mentioned the same plant names in their lists. Interestingly, there is a clear demarcation between the two groups, with novices appearing on the lower half of the graph and the experts at the top. While there is some overlap between the experts and novices, the pattern shown on Figure 4 reveals that experts share more listed items with each other than with novices, and conversely, novices are more similar to each other than to other experts. In other words, two rather distinct constellations of wild plants are mutually exclusive to each of the two groups. These results suggest that, in Little Dixie, two ethnobotanical knowledge structures exist—one for experts and one for novices—rather than a single shared system.
Contrasting Plant Use Patterns.—After each respondent was asked to list as many useful wild plants as they could think of, he or she was prompted to name as many uses for each plant as possible. A review of the collected applications yielded a total of seven different use categories for the named plants: food, medicine, wood/lumber, ornamental, wildlife forage, handicrafts, and other. All wild plant applications on each free-list were coded with their corresponding use categories. On occasions when consultants offered several categories of use for the same plant, each category was recorded. The number of applications that fell into each category was summed and converted into percentages by dividing by the total number of applications reported by that group.

As displayed in Figure 5a and Figure 5b, food is the most commonly named use category for the plants listed by expert and novice respondents. At 48% and 52% of the total applications cited by experts and novices respectively, food is also the most culturally fundamental use for wild flora. In Little Dixie, edible plants constitute an important part of the traditional foodways that help characterize the region. The custom of gathering wild fruits, berries, and nuts from the local woods is shared and enjoyed by most local people, regardless of their level of botanical expertise, which probably accounts for this shared pattern of use.

The remaining use categories, however, are considerably different with respect to the proportion of applications cited by experts and novices. The second most commonly mentioned category for the experts is medicinal plants, comprising a sizeable percentage (38%) of the total reported plant uses by experts. The prevalence of edible and medicinal plants in the expert pharmacopoeia reflects the interest and knowledge in holistic living and natural healing that is pursued and practiced by a number of the expert herbalists who were consulted. The remaining uses given by experts were rather evenly distributed into the decreasingly smaller categories of wood/lumber, ornamental, wildlife forage, other, and crafts.

Among the novices, the food category was followed by ornamental (16%) and wood/lumber (11%). The relatively high percentage of ornamentals listed by novices reflects a significant pattern through the course of this project—the novice predilection toward a perceptually oriented knowledge of wild plants. Ornamental plants are deemed meaningful and useful by virtue of their physical characteristics and visual appeal. Knowledge of ornamentals is readily available to the novice, for it requires only an aesthetic appreciation for the beauty of form—and knowledge of the name of the plant—but not experience with use and function. Comprising only 6.5% of the total uses reported, the medicinal use category ranked fifth in frequency for the novices, after wood/lumber (11%) and wildlife forage (7%).

To compare the overall diversity of the plant use categories for experts and novices, the index of qualitative variation (IQV) was applied to the plant application data. Ranging between 0 and 1, the IQV measures the degree of evenness in the proportional distribution of a sample. The higher the IQV value, the more uniform or balanced the distribution is deemed to be. The IQV is computed as
FIGURE 5a.—Distribution of expert uses for plants.
FIGURE 5b.—Distribution of novice uses for plants.

\[
1 - \sum \frac{P_i^2}{1 - 1/k}
\]

where \( P_i \) is the proportion of plant reports represented by each category and \( k \) is the number of use categories. For the experts, the IQV yields a value of .78, and for the novices the IQV is .79. These results indicate that, for each group, the
relative degree of evenness in the distribution of plant applications is extremely similar. That is, the seven use categories show a moderately balanced representation for each group.

While the IQV measures distribution or evenness, the index of dissimilarity (D_s) is useful for assessing quantitatively the differences in overall use patterns. D_s is calculated as

$$D_s = \frac{1}{2} \sum |P_e - P_n|$$

where P_e is the proportion of expert plant applications in each category and P_n is the proportion of novice applications in each category. The index of dissimilarity also generates a value between 0 and 1, where 0 indicates perfect similarity and 1 indicates perfect dissimilarity between the groups’ categorical distribution. Calculating the index of dissimilarity generates a D_s value of 24%, which means that 24% of either group’s distribution would have to change in order to match the other group’s distribution.

So where are these differences coming from? While the proportion of applications listed as food is very similar for the two groups, experts know considerably more about medicinal plants than novices, who report far more plants as ornamentally useful. Experts are also more intimately involved and experienced with plants in general, and have acquired through time a more extensive understanding of the cultural uses of plants—particularly the therapeutic aspects. While it takes an expert to understand how to use plants medicinally, anyone can appreciate the beauty of a given species and deem it worthy of ornamental display. This very fact may explain why novices report a much higher number of plants in the ornamental category. Novices know less of the esoteric medicinal functions of wild flora, which requires a level of botanical knowledge and interest more characteristic of expert respondents.

The Expressive Evaluation of Wild Plants.—In descending order, the correlations between the rating scores for experts and novices are: ecological value = .70 (p < .001), usefulness = .49 (p < .05), preference = .46 (p < .05), and beauty = .36 (p > .05). These r-values reflect the similarity with which experts and novices rated the plants, especially with regard to ecological value. It is noteworthy, however, that the groups do not correlate significantly when rating the plants according to beauty. These findings agree with those by Chick and Roberts (1987), who determined that machinists and non-machinists rated lathe parts very similarly with respect to complexity, but very differently with regard to beauty. Like the discovery by Chick and Roberts, these results show that the two groups agree most on the highly denotative variable, ecological value, and least on the most connotative variable, beauty.

Table 3 lists the intercorrelations among the four rating variables for experts and novices. For both groups, personal preference appears to be the most important underlying dimension in the evaluation of the wild plant domain. That is, plants that are preferred are also considered useful, ecologically valuable, and beautiful. One interesting expert-novice distinction is clear, however: the correlation values between usefulness and beauty. For the experts, there is a low cor-
TABLE 3.—Multiple correlation of mean ranks of wild plants on four variables (experts’ values shown to the left, novices’ values in parentheses).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Preference</th>
<th>Usefulness</th>
<th>Ecological value</th>
<th>Beauty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preference</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usefulness</td>
<td>0.72***</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecological value</td>
<td>0.74***</td>
<td>0.55*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Beauty</td>
<td>0.62**</td>
<td>0.39 (0.92)**</td>
<td>0.68** (0.57)**</td>
<td>1</td>
</tr>
</tbody>
</table>

***p < .001, **p < .01, *p < .05.

relation for the two variables (.39), yet for the novices, the correlation is very high (.92). The difference between these r-square values was tested and found to be significant (z = 3.31, p < .001). In fact, the difference in r-square values between usefulness and beauty is the only significant disparity between the two groups. This difference, taken in concert with the low rating correlation on the beauty variable, indicates that novices emphasize beauty as an organizational factor in the conceptualization of wild plants. Novices are restricted to purely visual stimuli when abstracting an emotional and/or cognitive impression of a given plant. It follows that a plant’s usefulness is a function of its overall perceptual appeal, or beauty. The salience of beauty in wild plant evaluation would also explain the high proportion of ornamental plants free-listed by novices. On the other hand, beauty is significantly de-emphasized in the determination of usefulness in the mind of the expert. Experts have more criteria for usefulness at their disposal (e.g., nutritional value, medical efficacy, etc.). Any of these esoteric factors are most likely used in concert by experts when evaluating the usefulness of different plants.

Thus, it is evident that the accumulation of expertise entails a shift in domain appreciation, or how the domain is evaluated and organized from an expressive point of view. The rating patterns by the two groups indicates that experts and novices have contrasting standards for appreciating wild plants, which appears to be linked to underlying differences in how the domain is organized conceptually.

SUMMARY AND CONCLUSION

It has been shown, as predicted, that experts and novices utilize different referential features in their articulation of wild plants in Little Dixie. These differences are evident by examining the plants and uses cited in the free-lists, which reflect how experts and novices acquire and develop information about ambient flora. Novices are more cognizant of plants with high perceptual and ecological salience, while experts focus on function and display knowledge of species with high use potential, regardless of their distinctiveness or abundance. Although food represents the major use category for both groups, experts use a high proportion of plants for medicinal reasons, while novices use plants much more frequently for ornamental purposes.

An examination of experts’ and novices’ expressive plant judgements reveals that novices emphasize beauty while experts prioritize cultural value when ranking the species. These findings reaffirm that experts are influenced most by use-
fulness and practicality, while novices are affected more by aesthetic variables in their organization of plant knowledge. Taken together, the results suggest that the acquisition of ethnobotanical knowledge entails a cognitive shift from morphological factors and sensory perceptions to a more complex comprehension of plants based on abstract, culturally acquired utilitarian factors. This information can be applied in a number of ways to understand how cultural experience shapes our comprehension and appreciation of our natural worlds.

NOTES

1 For example, Chick and Roberts (1987) examined the evaluation of lathe parts by machinists and non-machinists. The authors discovered that the machinists display more agreement regarding the expressive aspects of lathe parts than the non-machinists, due to the experts' better understanding of how the parts are manufactured.

2 However, these plants are not absent altogether from the experts' wild plant inventory—they appear further down on the composite list.

3 Again, the species discussed here do appear on the novices' inventory, but with considerably lower rankings in frequency and salience.

4 Similar use report patterns by plant experts appear throughout the ethnobotanical literature. For example, in a study of Mestizo plant use in rural Mexico by Benz and his colleagues, many unique or once-mentioned species were listed by expert consultants (Benz et al. 1994). Accordingly, Nolan (1998) found that wild plant experts of the Ozark-Ouachita Highlands listed relatively high proportions of idiosyncratic species. Cognitive anthropologists have found considerable knowledge variation to exist among expert respondents (e.g., Boster and Johnson 1989, Nolan 2001). These studies offer something of a challenge to cultural consensus theory, which is built on the proposition that agreement or consensus among respondents is indicative of cultural expertise.

5 The boundaries between certain use categories are often "fuzzy," particularly with respect to food and medicine. For this reason, it was necessary to code a number of plants into multiple categories, such as those used in spring tonics (e.g., sassafras, burdock, may apple). For insightful information on the categorical overlap of food and medicine in people-plant interactions, see Johns (1996, 1994).

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APPENDIX 1.—Composite inventory of free-listed species and their reported uses.

<table>
<thead>
<tr>
<th>Vernacular name</th>
<th>Scientific name</th>
<th>Uses for plant</th>
<th>Part of plant used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alum root</td>
<td>Heuchera americana L.</td>
<td>medicine</td>
<td>roots</td>
</tr>
<tr>
<td>Amaranth</td>
<td>Amaranthus L. spp.</td>
<td>food</td>
<td>leaves, seeds</td>
</tr>
<tr>
<td>Apple</td>
<td>Malus pumila Mill.</td>
<td>food, wood</td>
<td>fruits, whole tree</td>
</tr>
<tr>
<td>Ash</td>
<td>Fraxinus americana L.</td>
<td>wood</td>
<td>trunk</td>
</tr>
<tr>
<td>Asparagus</td>
<td>Asparagus officinalis L.</td>
<td>food, tea</td>
<td>whole plant, leaves, seeds</td>
</tr>
<tr>
<td>Aster</td>
<td>Aster L. spp.</td>
<td>ornamental</td>
<td>flowers</td>
</tr>
<tr>
<td>Basswood</td>
<td>Tilia americana L.</td>
<td>lumber</td>
<td>wood</td>
</tr>
<tr>
<td>Bayberry</td>
<td>Myrica L. spp.</td>
<td>crafts, making candles</td>
<td>leaves, berries</td>
</tr>
<tr>
<td>Beebalm</td>
<td>Monarda didyma L.</td>
<td>ornamental, wildlife forage</td>
<td>all</td>
</tr>
<tr>
<td>Beggars lice</td>
<td>Lappula echinata Gilib.</td>
<td>wildlife forage, fix nitrogen in soil</td>
<td>plant, seeds</td>
</tr>
<tr>
<td>Big Bluestem</td>
<td>Andropogon gerardii Vitman.</td>
<td>wildlife forage</td>
<td>plant</td>
</tr>
<tr>
<td>Birch</td>
<td>Betula L. ssp.</td>
<td>lumber, shade</td>
<td>wood, all</td>
</tr>
<tr>
<td>Bittersweet</td>
<td>Solanum dulcamara L.</td>
<td>ornamental</td>
<td>whole plant (not roots)</td>
</tr>
<tr>
<td>Black cohosh</td>
<td>Cimicifuga racemosa (L.) Nutt.</td>
<td>medicine</td>
<td>bark</td>
</tr>
<tr>
<td>Black haw</td>
<td>Viburnum prunifolium L.</td>
<td>medicine</td>
<td>roots</td>
</tr>
<tr>
<td>Black locust</td>
<td>Robinia pseudo-acacia L.</td>
<td>medicine</td>
<td>wood</td>
</tr>
<tr>
<td>Blackberry</td>
<td>Rubus L. ssp.</td>
<td>food, medicine, wildlife forage, tea</td>
<td>berries, roots, fruits, leaves</td>
</tr>
<tr>
<td>Black-eyed Susan</td>
<td>Rudbeckia hirta L.</td>
<td>ornamental, flower gardens</td>
<td>flowers, whole flower, plant</td>
</tr>
<tr>
<td>Blazing star</td>
<td>Liatris Schreb. ssp.</td>
<td>ornamental</td>
<td>plant</td>
</tr>
<tr>
<td>Bloodroot</td>
<td>Scrophularia marilandica L.</td>
<td>medicine</td>
<td>root</td>
</tr>
<tr>
<td>Blue cohosh</td>
<td>Caulophyllum thalictroides (L.) Michx.</td>
<td>medicine</td>
<td>roots</td>
</tr>
<tr>
<td>Bluebells</td>
<td>Mertensia virginica (L.) Pers.</td>
<td>ornamental</td>
<td>whole</td>
</tr>
<tr>
<td>Bluestem</td>
<td>Andropogon virginicus L.</td>
<td>wildlife forage</td>
<td>whole plant</td>
</tr>
<tr>
<td>Boneset</td>
<td>Eupatorium perfoliatum L.</td>
<td>medicine</td>
<td>leaves</td>
</tr>
<tr>
<td>Burdock</td>
<td>Arctium minus Bernh.</td>
<td>food, medicine, blood purifier</td>
<td>leaves, roots</td>
</tr>
<tr>
<td>Burhead</td>
<td>Echinodorus cordifolius (L.) Griseb.</td>
<td>wildlife forage</td>
<td>seeds</td>
</tr>
<tr>
<td>Butterfly weed</td>
<td>Asclepias tuberosa L.</td>
<td>wildlife forage</td>
<td>plant</td>
</tr>
<tr>
<td>Cardinal flower</td>
<td>Lobelia cardinalis L.</td>
<td>water gardens, wildlife forage</td>
<td>all</td>
</tr>
<tr>
<td>Carpenters square</td>
<td>Scrophularia marilandica L.</td>
<td>medicine, food</td>
<td>leaves, greens</td>
</tr>
<tr>
<td>Catnip</td>
<td>Nepeta cataria L.</td>
<td>for cat tonic</td>
<td>leaves</td>
</tr>
<tr>
<td>Cattail</td>
<td>Typha latifolia L.</td>
<td>food, ornamental, sewage treatment</td>
<td>rootstock, stalk, seed head</td>
</tr>
<tr>
<td>Chamomile</td>
<td>Matricaria chamomila L.</td>
<td>sedative tea, medicine</td>
<td>flowers</td>
</tr>
<tr>
<td>Chestnut</td>
<td>Castanea dentata (Marsh.) Borkh.</td>
<td>food</td>
<td>nuts</td>
</tr>
<tr>
<td>Vernacular name</td>
<td>Scientific name</td>
<td>Uses for plant</td>
<td>Part of plant used</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Chickweed</td>
<td>Stellaria media L.</td>
<td>medicine, food</td>
<td>leaves, stems, greens, blossoms</td>
</tr>
<tr>
<td>Chicory</td>
<td>Cichorium intybus L.</td>
<td>food, tea</td>
<td>roots, leaves, flowers</td>
</tr>
<tr>
<td>Chokecherry</td>
<td>Prunus virginiana L.</td>
<td>medicine</td>
<td>berries, bark</td>
</tr>
<tr>
<td>Chufa</td>
<td>Cyperus esculentus L.</td>
<td>wildlife forage</td>
<td>seeds</td>
</tr>
<tr>
<td>Cleavers</td>
<td>Galium aparine L.</td>
<td>medicine</td>
<td>stalk, leaves</td>
</tr>
<tr>
<td>Clover</td>
<td>Trifolium repens L.</td>
<td>wildlife forage, nitrogen fixing</td>
<td>whole plant</td>
</tr>
<tr>
<td>Coltsfoot</td>
<td>Petasites hybridus L.</td>
<td>medicine</td>
<td>leaf stem</td>
</tr>
<tr>
<td>Columbine</td>
<td>Aquilegia canadensis L.</td>
<td>ornamental</td>
<td>flowers</td>
</tr>
<tr>
<td>Coreopsis</td>
<td>Coreopsis tinctoria Nutt.</td>
<td>flower gardens</td>
<td>plants</td>
</tr>
<tr>
<td>Cornflower</td>
<td>Centaurea cyanus L.</td>
<td>ornamental</td>
<td>trunk</td>
</tr>
<tr>
<td>Cottonwood</td>
<td>Populus deltoides Marsh.</td>
<td>lumber</td>
<td>leaves</td>
</tr>
<tr>
<td>Cow parsley</td>
<td>Heracleum lanatum Michx.</td>
<td>food</td>
<td>all</td>
</tr>
<tr>
<td>Crabapple</td>
<td>Pyrus L. spp.</td>
<td>food</td>
<td>berries</td>
</tr>
<tr>
<td>Crabgrass</td>
<td>Digitaria Heist. spp.</td>
<td>ground cover</td>
<td>wood</td>
</tr>
<tr>
<td>Current</td>
<td>Ribes odoratum Wendl.</td>
<td>food</td>
<td>flowers</td>
</tr>
<tr>
<td>Cypress</td>
<td>Taxodium distichum (L.) Rich.</td>
<td>lumber</td>
<td>flowers, leaves</td>
</tr>
<tr>
<td>Daisy</td>
<td>Chrysanthemum leucanthemum L.</td>
<td>ornamental</td>
<td>flowers</td>
</tr>
<tr>
<td>Dandelion</td>
<td>Taraxacum officinale Weber.</td>
<td>food, medicine, wildlife forage</td>
<td>flowers, leaves</td>
</tr>
<tr>
<td>Daylily</td>
<td>Hemerocallis fulva L.</td>
<td>ornamental</td>
<td>all</td>
</tr>
<tr>
<td>Dewberry</td>
<td>Rubus flagellaris Wild.</td>
<td>food, wildlife forage</td>
<td>berries, fruits</td>
</tr>
<tr>
<td>Dill</td>
<td>Anethum graveolens L.</td>
<td>food, pickling</td>
<td>tops</td>
</tr>
<tr>
<td>Dogwood</td>
<td>Corus florida L.</td>
<td>ornamental</td>
<td>whole</td>
</tr>
<tr>
<td>Duckweed</td>
<td>Spirodela Schleiden spp.</td>
<td>aquatic protection</td>
<td>all</td>
</tr>
<tr>
<td>Elderberry</td>
<td>Sambucus canadensis L.</td>
<td>food, medicine</td>
<td>berries</td>
</tr>
<tr>
<td>Ferns</td>
<td>Polypodium (Tourn.) L. spp.</td>
<td>food, ornamental</td>
<td>crowns</td>
</tr>
<tr>
<td>Fescue grass</td>
<td>Festuca L. spp.</td>
<td>food for cattle</td>
<td>stems, leaves</td>
</tr>
<tr>
<td>Feverfew</td>
<td>Chrysanthemum parthenium (L.) Bernh.</td>
<td>medicine</td>
<td>leaves</td>
</tr>
<tr>
<td>Foxglove</td>
<td>Digitalis purpurea L.</td>
<td>medicine</td>
<td>flowers, leaves</td>
</tr>
<tr>
<td>Gentian</td>
<td>Gentiana quinquefolia L.</td>
<td>medicine</td>
<td>roots</td>
</tr>
<tr>
<td>Ginseng</td>
<td>Panax quinquefolius L.</td>
<td>medicine, stimulant</td>
<td>roots</td>
</tr>
<tr>
<td>Goats rue</td>
<td>Tephrosia virginiana (L.) Pers.</td>
<td>fish bait</td>
<td>plant</td>
</tr>
<tr>
<td>Goldenrod</td>
<td>Solidago L. spp.</td>
<td>wildlife forage</td>
<td>blossom</td>
</tr>
<tr>
<td>Vernacular name</td>
<td>Scientific name</td>
<td>Uses for plant</td>
<td>Part of plant used</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------</td>
<td>------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Goldenseal</td>
<td>Hydrastis canadensis L.</td>
<td>medicine, blood purifier</td>
<td>roots, leaves, plant</td>
</tr>
<tr>
<td>Gooseberry</td>
<td>Ribes missouriense Nutt.</td>
<td>food, forage</td>
<td>fruits, berries</td>
</tr>
<tr>
<td>Grass</td>
<td>various species of Poaceae</td>
<td>wildlife forage, stop erosion</td>
<td>stalk, leaves</td>
</tr>
<tr>
<td>Hawthorn</td>
<td>Crataegus L. ssp.</td>
<td>medicine</td>
<td>roots</td>
</tr>
<tr>
<td>Hazelnut</td>
<td>Corylus L. ssp.</td>
<td>wildlife forage, ornamental, food</td>
<td>whole plant, nuts</td>
</tr>
<tr>
<td>Hemlock</td>
<td>Cucurbita maxulata L.</td>
<td>poison</td>
<td>leaves</td>
</tr>
<tr>
<td>Hemp</td>
<td>Cannabis sativa L.</td>
<td>medicine, crafts, paper products</td>
<td>leaves, stalks, buds, fibers</td>
</tr>
<tr>
<td>Hickory</td>
<td>Carya Nutt. ssp.</td>
<td>food, forage, lumber, crafts</td>
<td>nuts, wood, trunk, bark</td>
</tr>
<tr>
<td>Holly</td>
<td>Ilex opaca Ait.</td>
<td>ornamental</td>
<td>all, berries, leaves</td>
</tr>
<tr>
<td>Horehound</td>
<td>Marrubium vulgare L.</td>
<td>medicine</td>
<td>leaves</td>
</tr>
<tr>
<td>Horsetail</td>
<td>Equisetum arvense L.</td>
<td>scouring pads, musical instruments</td>
<td>stems, stalk</td>
</tr>
<tr>
<td>Huckleberry</td>
<td>Gaylussacia baccata (Wang.) K. Koch.</td>
<td>food</td>
<td>berries</td>
</tr>
<tr>
<td>Hyssop</td>
<td>Hyssopus officinalis L.</td>
<td>cleaning</td>
<td>leaves</td>
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<tr>
<td>Indian grass</td>
<td>Sorghastrum nutans (L.) Nash</td>
<td>wildlife forage</td>
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<tr>
<td>Indian paintbrush</td>
<td>Castilleja coccinea (L.) K. Spreng.</td>
<td>ornamental, flower gardens</td>
<td>flowers, plant</td>
</tr>
<tr>
<td>Indigo</td>
<td>Baptisia Vent. ssp.</td>
<td>crafts, fix nitrogen in soil</td>
<td>plant</td>
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<tr>
<td>Iris</td>
<td>Iris L. ssp.</td>
<td>wildlife forage, ornamental</td>
<td>plant, all, root</td>
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<tr>
<td>Jack-in-the-pulpit</td>
<td>Arisaeac a triphylhum (L.) Schott.</td>
<td>ornamental</td>
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<tr>
<td>Jewelweed</td>
<td>Impatiens pallida L.</td>
<td>medicine, poison ivy</td>
<td>leaves, stems</td>
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<tr>
<td>Joe Pye weed</td>
<td>Eupatorium purpureum L.</td>
<td>medicine, spring tonic</td>
<td>leaves, roots</td>
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<tr>
<td>Juniper</td>
<td>Juniperus virginiana L.</td>
<td>medicine, ornamental, food,</td>
<td>berries, whole tree</td>
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<td>windbreak</td>
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<td>Ladyslipper</td>
<td>Cypripedium L. ssp.</td>
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<td>flowers</td>
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<td>Lamb's quarters</td>
<td>Chenopodium album L.</td>
<td>food, greens, purifier</td>
<td>leaves</td>
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<td>Larkspur</td>
<td>Delphinium L. ssp.</td>
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<td>Lead plant</td>
<td>Amorpha canescens Pursh.</td>
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<td>Lespedeza</td>
<td>Lespedeza Michx. ssp.</td>
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<td>Licorice</td>
<td>Glycyrrhiza lepidota (Nutt.) Pursh.</td>
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<td>Lilac</td>
<td>Syringa vulgaris L.</td>
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<td>Little Bluestem</td>
<td>Andropogon L. ssp.</td>
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<td>Maple</td>
<td>Acer saccharum L.</td>
<td>lumber, ornamental, food, shade</td>
<td>wood, whole tree, sap, trunk</td>
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<td>Marijuana</td>
<td>Cannabis sativa L.</td>
<td>clothing, smoking, medicine</td>
<td>leaf, buds</td>
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<td>May apple</td>
<td>Podophyllum peltatum L.</td>
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<td>fruits</td>
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<td>Vernacular name</td>
<td>Scientific name</td>
<td>Uses for plant</td>
<td>Part of plant used</td>
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<td>Milkweed</td>
<td>Asclepias syriaca L.</td>
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<td>Miner's lettuce</td>
<td>Lactuca L. spp.</td>
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<td>Morel</td>
<td>Morchella esculenta L.</td>
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<td>whole mushroom, tops</td>
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<td>Mugwort</td>
<td>Artemisia vulgaris L.</td>
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<td>leaves</td>
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<td>Mulberry</td>
<td>Morus rubra L.</td>
<td>food, medicine, shade</td>
<td>fruits, berries</td>
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<td>Mullein</td>
<td>Verbascom thyopus L.</td>
<td>ornamental, medicine, toilet paper</td>
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<td>Mustard</td>
<td>Brasica L. spp.</td>
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<td>seeds</td>
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<td>Nettles</td>
<td>Urtica L. spp.</td>
<td>crafts, medicine, food</td>
<td>leaves, fruit, greens</td>
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<td>Ninebark</td>
<td>Physocarpus opulifolius L.</td>
<td>stabilize stream bank, medicine</td>
<td>whole plant, inner bark</td>
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<td>Oak</td>
<td>Quercus L. spp.</td>
<td>lumber, crafts, forage, firewood, shade</td>
<td>wood, acorns, trunk, nuts</td>
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<td>Ohio buckeye</td>
<td>Aesculus hippocastanum L.</td>
<td>good luck piece</td>
<td>nuts, wood</td>
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<tr>
<td>Osage orange</td>
<td>Machera pomifera (Raf.) Schneid.</td>
<td>firewood, moth repellent</td>
<td>wood, fruit</td>
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<tr>
<td>Passionflower</td>
<td>Passiflora incarnata L.</td>
<td>medicine</td>
<td>leaves</td>
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<td>Pawpaw</td>
<td>Asimina trifolba (L.) Dunal</td>
<td>food</td>
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<td>Peach</td>
<td>Prunus persica L.</td>
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<td>fruits</td>
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<td>Pear</td>
<td>Pyrus communis L.</td>
<td>food</td>
<td>fruits</td>
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<tr>
<td>Pecan</td>
<td>Carya illinensis (Wang.) K. Koch.</td>
<td>food, wood</td>
<td>nuts, wood</td>
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<td>Pencil flower</td>
<td>Styllosanthes biflora (L.) BSP.</td>
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<td>Pennyroyal</td>
<td>Hedeoma pulegioides (L.) Pers.</td>
<td>tea, medicine</td>
<td>leaves</td>
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<td>Persimmon</td>
<td>Diospyros virginiana L.</td>
<td>food</td>
<td>fruits, seeds</td>
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<td>Pickerel weed</td>
<td>Pontederia cordata L.</td>
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<td>Pine</td>
<td>Pinus echinata L.</td>
<td>lumber, ornamental, shade, food</td>
<td>wood, trunk, cones, needles</td>
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<td>Plantain</td>
<td>Plantago major L.</td>
<td>medicine, food</td>
<td>leaves, roots, flowers, all</td>
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<td>Pokeweed</td>
<td>Phyllotaca americana L.</td>
<td>food, crafts, medicine</td>
<td>leaves, berries, greens</td>
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<td>Poppy</td>
<td>Argemone albiflora Hornem.</td>
<td>food</td>
<td>seeds</td>
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<td>Prairie cordgrass</td>
<td>Spartina pectinata Link.</td>
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<td>Prairie dropseed</td>
<td>Sperobolus heterolepis (Gray) Gray</td>
<td>wildlife forage</td>
<td>leaves, fruits, flowers</td>
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<td>Prickly pear</td>
<td>Opuntia humifusa (Raf.) Raf.</td>
<td>food</td>
<td>plant</td>
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<td>Primrose</td>
<td>Oenothera biennis L.</td>
<td>flower gardens, food, medicine</td>
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<td>Purple coneflower</td>
<td>Echinacea purpurea (L.) Moench.</td>
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<td>greens, leaves</td>
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<td>Purslane</td>
<td>Portulaca oleracea L.</td>
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<td>Pussywillow</td>
<td>Salix humilis Marsh.</td>
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<td>flowers, leaves</td>
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<tr>
<td>Queen Anne's lace</td>
<td>Daucus carota L.</td>
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<td>Vernacular name</td>
<td>Scientific name</td>
<td>Uses for plant</td>
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<td>Quinin</td>
<td><em>Parthenium integrifolium</em> L.</td>
<td>medicine</td>
<td>roots, leaves</td>
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<td>Raspberry</td>
<td><em>Rubus strigosus</em> Michx.</td>
<td>food, medicine</td>
<td>berries, roots, leaves, fruit</td>
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<td>Rattlesnake master</td>
<td><em>Eryngium yuccifolium</em> Michx.</td>
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<td>plant</td>
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<td>Red clover</td>
<td><em>Trifolium pratense</em> L.</td>
<td>crafts</td>
<td>leaves</td>
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<td>Redbud</td>
<td><em>Cercis canadensis</em> L.</td>
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<td>Royal catchfly</td>
<td><em>Silene regia</em> Sims.</td>
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<td>Sarsaparilla</td>
<td><em>Aralia nudicaulis</em> L.</td>
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<td>Sassafras</td>
<td><em>Sassafras albidum</em> (Nutt.) Noes.</td>
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<td><em>Cassia marilandica</em> L.</td>
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<td><em>Amelanchierarborea</em> (Michx. f.) Fern.</td>
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<td>Sheep sorrel</td>
<td><em>Rumex acetosella</em> L.</td>
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<td>Shepherd’s purse</td>
<td><em>Capsella bursa-pastoris</em> (L.) Medic.</td>
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<td>Shooting stars</td>
<td><em>Dodecatheon mensa</em> L.</td>
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<td>Slippery elm</td>
<td><em>Ulmus rubra</em> Muhl.</td>
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<td>Smartweed</td>
<td><em>Polygonum</em> L. spp.</td>
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<td>Snakeroot</td>
<td><em>Eupatorium rugosum</em> Houtt.</td>
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<td>Snow on the mountain</td>
<td><em>Euphorbia marginata</em> Pursh.</td>
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<td>Solomons seal</td>
<td><em>Polygonatum</em> Mill. spp.</td>
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<td>Sorrel</td>
<td><em>Rumex</em> L. spp.</td>
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<td>leaves</td>
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<td>Spearmint</td>
<td><em>Mentha spicata</em> L.</td>
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<td>Spiderwort</td>
<td><em>Tradescantia subaspera</em> Ker.</td>
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<td><em>Rhus</em> L. spp.</td>
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<td>Sunflower</td>
<td><em>Helianthus annuus</em> L.</td>
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<td><em>Melilotus alba</em> Medic.</td>
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<td><em>Phlox divaricata</em> L.</td>
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<td>nectar</td>
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<td><em>Panicum virgatum</em> L.</td>
<td>ornamental forage, levee stabilizer</td>
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<td>Sycamore</td>
<td><em>Platanus occidentalis</em> L.</td>
<td>lumber</td>
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<td>Tansy</td>
<td><em>Tanacetum vulgare</em> L.</td>
<td>insect repellent</td>
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<td>Teasel</td>
<td><em>Dipsacus sylvestris</em> Huds.</td>
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<td>Trumpet vine</td>
<td><em>Campsis radicans</em> (L.) Seem.</td>
<td>ornamental</td>
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<td>Violet</td>
<td><em>Viola</em> L. spp.</td>
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<td>Vernacular name</td>
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<td>Uses for plant</td>
<td>Part of plant used</td>
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<td>Walnut</td>
<td>Juglans L. spp.</td>
<td>food, medicine, poison, firewood, forage</td>
<td>nuts, hulls, bark, wood</td>
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<td>Watercress</td>
<td>Nasturtium officinale R. Br.</td>
<td>medicine, food</td>
<td>leaves, greens, blossoms</td>
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<td>Waterlily</td>
<td>Nymphaea odorata Ait.</td>
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<td>Weeping willow</td>
<td>Salix babylonica L.</td>
<td>shade</td>
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<td>White clover</td>
<td>Trifolium repens L.</td>
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<td>White sage</td>
<td>Artemisia ludoviciana Nutt.</td>
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<td>Prunus serotina Ehrh.</td>
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<td>berries, bark, fruit</td>
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<tr>
<td>Wild chervil</td>
<td>Anthriscus cerefolium (L.) Hoffm.</td>
<td>food, garnish</td>
<td>stems, leaves</td>
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<td>Wild garlic</td>
<td>Allium canadense L.</td>
<td>food</td>
<td>bulb</td>
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<td>Wild ginger</td>
<td>Asarum canadense L.</td>
<td>medicine</td>
<td>roots</td>
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<td>Vitis L. spp.</td>
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<td>Mentha arvensis L.</td>
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<td>Wild oats</td>
<td>Uvularia sessilifolia L.</td>
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<td>grain</td>
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<td>Wild onion</td>
<td>Allium stellatum Ker.</td>
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<td>Wild parsnip</td>
<td>Pastinaca sativa L.</td>
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<td>Prunus americana L.</td>
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<td>fruits</td>
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<td>Rosa L. spp.</td>
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<td>berries</td>
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<td>Wild strawberry</td>
<td>Fragaria virginiana L.</td>
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<td>Willow</td>
<td>Salix alba L.</td>
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<td>bark, whole tree, stalks, leaves</td>
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<td>Winter cress</td>
<td>Barbarea vulgaris R. Brown</td>
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<td>Yarrow</td>
<td>Achillea millefolium L.</td>
<td>medicine</td>
<td>leaf stem, flowers</td>
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<td>Yellow dock</td>
<td>Rumex crispus L.</td>
<td>blood purifier, medicine</td>
<td>roots, bark, leaves</td>
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