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Daniel L. Marsh

Observations of Flowering in *Arundinaria gigantea*

(Walt.) Chapm. in Arkansas

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It is widely stated in the literature that flowering in *Arundinaria gigantea*, as in many other bamboos, occurs infrequently. Hitchcock (1935) stated that flowering generally occurs simultaneously over a wide area.

My first observation of *Arundinaria* in flower, was on April 2, 1967 along a sandy bank of the Buffalo River at Rush in Marion County (Marsh 2124). An unsuccessful search was made for other flowering sites (during several successive weeks).

In 1969, nine flowering sites in six counties of Arkansas were observed. These were located in the southwestern and north central parts of the State. Other occurrences in northwestern Arkansas were observed by Dr. Edwin B. Smith (personal communication).

My observations in 1969 were made from late March to late May in a variety of ecological situations. The sites were as follow:

1. Clark County, 1½ mi. SW of Vaden, March 31 (Marsh 2237). One patch covering about 30 m² was found in a grazed area near a large spring above a bald cypress swamp. The area was an abandoned farmstead cleared in a *Pinus - Quercus Liquidambar* woodland. The plants were mostly cut or grazed to less than four feet high.

2. Little River County, near White Cliffs on the flood plain of Little River, April 26 (Marsh 2421). The flowering plants were abundant over an extensive area. The area had been recently flooded, leaving a film of mud on all of the plants. Both new shoots, often nearly leafless, and old leafy shoots up to nine feet high were found profusely flowering. Some of the new shoots were connected by rhizomes to old shoots.

3. Hempstead County, Beard Lake Recreational Area below Millwood Dam, April 26 (Marsh 2431). The plants were mostly small, from one to four feet high, scattered abundantly over the picnic area which is in a moist, level, sedgy area.

4. Marion County, mouth of Water Creek on Buffalo River, May 3 (Marsh 2471). This sandy-soiled river and creek bank area was divided by a fence and partly grazed. The plants were mostly three to six feet high and profuse flowering was seen throughout the canebrake. Immature grains were found.

5. Searcy County, bank of Big Creek, east of Harriet, and upstream from Highway 14, May 4 (Marsh 2498). This small brake was situated in the splash area of a spring-fed fall from a bluff above. The steep, calcareous, rocky bank was very wet and well protected from grazing. The plants were growing among and from under the rocks.

6. Clark County, on the Caddo River flood plain, north of Amity and just west of Ark-182, May 5 (Marsh 2499) and May 31 (Marsh 2532). The large, dense canebrake, mixed with *Ulmus* and *Acer negundo* borders a small field and extends along the banks of several small creeks. Flowering occurred in scattered patches, mostly on old plants from four to sixteen feet high.

7. Clark County, Caddo River at Parker Falls north of Arkadelphia (area now inundated by De-Gray Reservoir), May 24 (Marsh 2529). A large patch, (heavily in flower), was located along the sandy river bank. No flowering was found in the brake higher up the hillside. Both new and old shoots were flowering, and new shoots were very abundant. Many inflorescences throughout the colony were bent or curved, and insect larvae were noticed attached to some of the curves.

8. Hot Spring County, west of Malvern on the local service road along I-30, May 25 (Marsh 2530). This small patch was located on the roadside on the bank of a small stream. Flowering was not heavy. No flowering was found in large canebrakes nearby.

9. Hot Spring County, east of Malvern in bottom land along Nine Mile Creek, May 25 (Marsh 2531). Among the extensive canebrakes examined, flowering was found in only one patch. This was in a swampy area with saturated soil.

It may be seen that flowering has occurred in a variety of ecological situations during the same season, and from the widespread locations of the observations it may be inferred that flowering occurred over much if not all of the state.

Although I observed pollen formation in all the sites, fruit formation was found only in the site at Water Creek in Marion County. Hughes (1951) found at Plymouth, North Carolina, that immature fruit was destroyed by insects. Observation of insect larvae on

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the inflorescences in the canebrake at Parker Falls and the lack of fruit formation in the other sites may indicate a similar situation in Arkansas.

Apparently the flowering in other genera of the Bambuseae has been remarkable in recent years. Newspapers in 1969 carried accounts of flowering in imported bamboos in Arkansas and elsewhere in this country, and there have been numerous reports by the popular press of dramatic flowering in the orient. Harney (1970) reported that in Japan flowering in timber bamboos followed by large scale death has become marked since 1959.

According to McClure (1966) two important items of information often neglected in reports on bamboos is the quantity of mature fruits produced and the survival of plants after flowering. Thus far I have found no mature fruit in *Arundinaria gigantea*. On April 16, 1970 I revisited the large canebrake north of Amity. Many plants which had flowered the previous spring were dead, but a few flowering plants were found among them. In another part of the brake abundant flowering was observed (Marsh 3523).

In this study no attempt has been made to distinguish *A. tecta* (Walt.) Muhl. from *A. gigantea*, although McClure (1963) has reported anatomical differences in the rhizomes which may distinguish the two taxa. Certainly the two taxa cannot readily be distinguished on the basis of whether the inflorescences are borne on leafless new shoots or leafy branches of old canes, as

indicated by earlier manuals such as Small's (1933).

Further study of the current flowering cycle is projected.

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Additions To The Arkansas Flora

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I have noticed in the last two years several collections in the state of Arkansas which apparently represent new records for the Arkansas flora, and it seems worthwhile to call these to the attention of other botanists in the state. The following species were not included in Branner & Coville's list (1891), Buchholz & Palmer's supplement (1926), any of the various papers on the Arkansas flora since that time (see Dale, 1963, etc.), nor were they specifically indicated to occur in Arkansas in any of the manuals available for Arkansas or adjacent states (e. g. Small (1913), Steyermark (1963) etc.).

GRAMINEAE (Tribe Chlorideae)

Chloris virgata Swartz

Arkansas County: Common near Airport, even in

cracks in the runway, outside of Stuttgart, Aug. 22, 1969, Sophia McCoy 3. This species was not included by Moore (1961) in his list of grasses of Arkansas. It differs from the similar *C. verticillata* Nutt. in the long whitish tufts of hair near the apex of the lemmas.

CONVOLVULACEAE

Ipomoea cairica (L.) House

Hempstead County: South of Hope, Sept. 7, 1940, D. M. Moore 400420. Prairie County: 2 mi. W. & 1/2 mi. S. of highway 11 at turn off from Slovak, Aug., 1969, Sophia McCoy 11. This is the only *Ipomoea* in the state with palmately compound leaves, and is apparently well established in