

THE GENUS *PHYLLOSTACHYS* (POACEAE, BAMBUISOIDEAE)
IN THE ARKANSAS (U.S.A.) FLORA

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ABSTRACT

Previously, the genus *Phyllostachys* was not well-studied in the Arkansas flora and only *P. aurea* was known from the state in the naturalized condition. Field work in 2025 by the authors in central and western Arkansas has increased the known distribution of *P. aurea* and documented the first occurrences of three additional species of *Phyllostachys*: *P. aureosulcata*, *P. bambusoides*, and *P. nigra* outside of cultivation. Whereas *P. bambusoides* and *P. nigra* are infrequent (known from 2 and 1 county, respectively), *P. aureosulcata* has a more wide-spread distribution in Arkansas, where it is documented from several counties. *Phyllostachys aureosulcata* and *P. aurea* are similar morphologically and easily confused without close examination, which may explain why *P. aureosulcata* remained undetected in the state's flora until now. Keys to identification of Arkansas *Phyllostachys* species and morphologically similar taxa, diagnostic and habitat photographs, current state distributions, and notes on their ecology and invasiveness are provided.

RESUMEN

Anteriormente, el género *Phyllostachys* no se había estudiado en profundidad en la flora de Arkansas y solo se conocía la presencia natural de *P. aurea* en estado natural en el estado. El trabajo de campo realizado en 2025 por los autores en el centro y el oeste de Arkansas ha aumentado la distribución conocida de *P. aurea* y ha documentado las primeras apariciones de tres especies adicionales de *Phyllostachys*: *P. aureosulcata*, *P. bambusoides* y *P. nigra* fuera del cultivo. Mientras que *P. bambusoides* y *P. nigra* son poco frecuentes (se conocen en 2 y 1 condado, respectivamente), *P. aureosulcata* tiene una distribución más amplia en Arkansas, donde se ha documentado en varios condados. *Phyllostachys aureosulcata* y *P. aurea* son morfológicamente similares y se confunden fácilmente sin un examen minucioso, lo que puede explicar por qué *P. aureosulcata* permaneció sin detectar en la flora del estado hasta ahora. Se proporcionan claves para la identificación de las especies de *Phyllostachys* de Arkansas y los taxones morfológicamente similares, fotografías diagnósticas de las especies y del hábitat, distribuciones estatales actuales y notas sobre su ecología e invasividad.

KEY WORDS: Poaceae, bamboo, Arkansas, invasive, *Phyllostachys*

INTRODUCTION

Phyllostachys is an Asiatic genus of more than 50 species of temperate, arborescent grasses, native mainly to China, but introduced to surrounding countries, especially Japan (Krüssmann 1977; Wang & Stapleton 2006; Stapleton & Barkworth 2007). The genus is characterized by the two unequal branches at most nodes, a result of a complete lack of internodal compression, along with the almost universal presence of buds at all nodes. It is the most distinct genus of hardy temperate bamboos and of enormous economic importance in eastern Asia and increasingly in North America and Europe (Stapleton & Barkworth 2007). All species are ornamental, especially those having cultivars with colored culms. The genus probably is of greater economic importance than any other bamboos in Asia and species are used for building supplies, paper, flooring, furniture, walking

sticks, umbrella handles, fishing rods, and as ornamentals (Bailey 1949; Wang et al. 1980; Wang & Stapleton 2006; Stapleton & Barkworth 2007). *Phyllostachys bambusoides* is grown commercially in Asia for building supplies, and the young shoots of other species, such as *P. dulcis* and *P. edulis*, are used as food (Wang & Stapleton 2006). Many species including *P. aurea*, *P. aureosulcata*, *P. bambusoides* (numerous cultivars), and *P. nigra*, are used as ornamentals for their attractive growth forms, colorful culms, and evergreen habit (Bailey 1949; McClure 1957; Bailey & Bailey 1976; Wang & Stapleton 2006) and sometimes as barriers and windbreaks. As a result of their importance and widespread use, several species of *Phyllostachys* have been introduced and become naturalized elsewhere in Asia, along with Europe, North America, and South America (Wang & Stapleton 2006; Stapleton & Barkworth 2007). Almost all species are likely to be invasive where introduced outside of their native ranges (Stapleton & Barkworth 2007). Although flowering generally is infrequent, *Phyllostachys* species spread aggressively via rhizomatous offsets from an extensive rhizome system, where rhizome length can equal that of the culms; in time, many species produce large, expansive colonies.

Several species are cultivated in the U.S.A., including Arkansas, and about six have become naturalized in the North American flora (Stapleton & Barkworth 2007; Keener et al. 2025; Weakley & Southeastern Flora Team 2025; Wunderlin et al. 2025). Some taxa, such as *P. aurea*, *P. aureosulcata*, and *P. bambusoides*, can be invasive and aggressively naturalize and establish via an extensive rhizome system and associated offsets. *Phyllostachys* has not been well-studied in Arkansas, and as a result, only *P. aurea* was known from the state's naturalized flora. Field work by the authors in 2025 increased the known distribution of *P. aurea* and also documented the naturalized occurrences of three additional species: *P. aureosulcata*, *P. bambusoides*, and *P. nigra*, which previously were undocumented in Arkansas outside of cultivation (Smith 1994; Gentry et al. 2013; Stapleton & Barkworth 2007; Ogle et al. 2020; SERNEC Data Portal 2025; Weakley & Southeastern Flora Team 2025). In Arkansas, most naturalized occurrences are traceable directly or indirectly to plants spreading from prior cultivation practices; however, some occurrences of *P. aurea* and *P. aureosulcata* exist as isolated colonies seemingly disjunct from any apparent cultivation source. All four species of *Phyllostachys* demonstrate invasive tendencies and should be expected elsewhere in Arkansas, especially in the vicinity of where cultivated. Plants frequently are encountered invading into both open and wooded habitats via their extensive rhizome systems and are highly competitive with both native and exotic plant species. *Phyllostachys bambusoides* and *P. nigra* are relatively uncommon in cultivation in Arkansas, whereas *P. aurea* and *P. aureosulcata* are commonly cultivated, which may explain their relative frequencies of occurrence in the flora.

Except for *P. nigra*, close examination of foliage leaves, culms, and culm sheaths is essential for proper species identification. The culms of *P. nigra* are distinct in color—green-purple to dark brownish-black, making it easily identifiable. *Phyllostachys aurea* and *P. aureosulcata* are similar morphologically and easily confused, especially when viewed from a distance. While there are subtle differences in growth form and habit between the two taxa, close examination of the color pattern and texture of the culms, along with the morphology of the culm nodes, allows for accurate species identification (see key to *Phyllostachys* species for specific identifying characteristics for all *Phyllostachys* species currently known for Arkansas). When collecting specimens of *Phyllostachys* spp., it is best to include the culm sheaths, if available; however, always include lower and upper sections of a well-developed, mature culm and at least some of the smaller upper stems and associated foliage leaves, even if multiple specimens must be made. Collection and preservation of inadequate material available for examination can make species determinations from herbarium specimens difficult. Documenting specific color patterns of culms and culm sheaths also is important, as these can fade or become obscure on dried specimens.

Several other taxa of rhizomatous, mostly exotic, often arborescent or “woody” grasses with well-developed culms are known from the Arkansas flora, including the recently discovered *Pleioblastus fortunei* (Serviss & Kratz 2025), which resembles *Arundinaria* and *Phyllostachys* but is much smaller in size. Species of *Phyllostachys* readily can be distinguished by their upper (foliage leaf-bearing) culms, which are sulcate—with a flattened or grooved area that runs along the length of the internodes; the other species have terete culms. The species of grasses in tribes Arundinarieae (*Arundinaria*, *Phyllostachys*, *Pleioblastus*), Arundineae

(*Arundo*), and Molinieae (*Phragmites*) currently known from the Arkansas flora can be distinguished by use of the following key.

1. Mature plants less than 1.5(–2) m tall _____ **Pleioblastus fortunei**
1. Mature plants more than 2 m tall, often to several meters in height.
 2. Leaf bearing portions of culms above the branches sulcate, with a distinct, flattened portion or groove along the length of the internodes.
 3. Culms dark green-purple to brownish-black, or green and mottled with purple, sometimes becoming glaucous with age or upon drying _____ **Phyllostachys nigra**
 3. Culms green, gray-green, yellow, or green with distinct areas of contrasting yellow coloration.
 4. Culms scabridulous (finely scabrous), mostly green but with the flattened internodal portions (grooves) of the leaf-bearing areas yellow and often conspicuous yellow longitudinal streaks on internodes of larger culms; lower portions of narrower culms sometimes geniculate _____ **Phyllostachys aureosulcata**
 4. Culms smooth, green, gray-green, or yellow but without the above specific coloration patterns and grooves not yellow unless entire culm yellow; bases of culms generally not geniculate.
 5. Culms to 10(–12) m tall, 1–5 cm in diameter; internodes of some larger culms (per colony) dissimilar in length, with the first one to few internodes conspicuously shorter (contracted) than higher internodes; nodes with a distinct raised collar at the base; culms green, gray and green, glaucous, or yellow (particularly those exposed to much sunlight); no auricles or fimbriae present on any culm leaves; foliage leaves with auricles and fimbriae well developed but deciduous or lacking _____ **Phyllostachys aurea**
 5. Culms to 22 m tall and 15 cm in diameter; internodes of larger culms similar in length (not contracted); nodes without a distinct raised collar at the base; culms green to gray-green, occasionally with areas of yellow coloration; auricles present on the upper culm leaves; fimbriae present on most to all culm leaves; foliage leaves with auricles and fimbriae usually well-developed and persistent _____ **Phyllostachys bambusoides**
 2. Culms terete and not sulcate (without a flattened area or groove along the internodes).
 6. Culm leaves bearing fimbriae _____ **Arundinaria gigantea**
 6. Culms leaves lacking fimbriate.
 7. Ligules membranous with minutely ciliate margin; hairs of spikelets arising from the backs of the lemmas _____ **Arundo donax**
 7. Ligules membranous but with conspicuously ciliate margin; hairs of spikelets arising only from the floret callus _____ **Phragmites australis**

CATALOG OF *PHYLLOSTACHYS* SPECIES IN THE ARKANSAS FLORA

Phyllostachys aurea Carrière ex Rivière & C. Rivière (Golden Bamboo, Fishpole Bamboo). **Figs. 1–4, 8A, 13.**

Phyllostachys bambusoides Siebold and Zucc. var. *aurea* (Carrière ex Rivière & C. Rivière) Makino. *Phyllostachys reticulata* (Rupr.) K. Koch var. *aurea* (Carrière ex Rivière & C. Rivière) Makino.

Culms 5–12 m tall and 2–5 cm in diameter; internodes 15–30 cm, green, sometimes with glaucous areas below the nodes on young stems or yellow to orange-yellow, sulcate portions concolorous with rest of culm, usually strongly shortened and commonly ventricose at basal nodes, sometimes distally inflated for several mm below node at mid-culm and basal nodes, initially white powdery, glabrous; wall 4–8 mm thick; nodal ridge as prominent as sheath scar or slightly more prominent (Fig. 3A); culm sheaths yellow-green or pale red-brown, becoming stramineous, with variably sized brown spots with age.

Phyllostachys aurea was documented in Arkansas from 19 counties (Gentry et al. 2013; Ogle et al. 2020); however, newly recorded counties include: Clark, Conway, Dallas, Faulkner, Grant, Hempstead, Montgomery, Ouachita, Pike, Union, and Van Buren (Figs. 1–2, 16). Not all occurrences of escaped or naturalized plants were vouchered, if observed from multiple sites in a given county. *Phyllostachys aurea* probably is the most abundant and widespread species of naturalized *Phyllostachys* in Arkansas, and is likely present in every county. Although typically encountered naturalizing from cultivated or persistent source plants, a few occurrences in some counties are isolated, without any apparent connection to prior cultivation practices. This species is invasive in Arkansas and readily colonizes both open and wooded habitats and is tolerant of a wide range of edaphic conditions and topographies. Larger colonies can occupy areas of many square meters. Habitat includes urban and semi-urban areas, woods and edges, upland sites and slopes, pastures, fields, lake margins (not in waterlogged soils), streamsides, roadsides, and disturbed sites and waste places (Fig. 4).

Without careful examination of culms and sometimes culm and foliage leaves, *P. aurea* potentially can be confused with both *P. aureosulcata* and *P. bambusoides* (Figs. 5, 10). In morphology and habit, it is particularly



FIG. 1. Naturalized plants of *Phyllostachys aurea* in Faulkner Co., Arkansas. Large, expansive colony growing along roadside and adjacent woods. Notice that numerous rhizomatous offsets are present in the right-of-way. Many similar naturalized occurrences of both *P. aurea* (and *P. aureosulcata*) occur in the state.



FIG. 2. Naturalized colony of *Phyllostachys aurea* from Pike Co., Arkansas. These plants occur along a right-of-way and extend into a disturbed wooded greenbelt. The colony likely originated from once-cultivated plants but has since spread and naturalized to cover a large area of roadside habitat. Notice the growth form overall is similar to *P. aureosulcata* (compare with Figs. 5 and 6) but the culms sometimes are more arching (less erect) and also sometimes slightly less dense.



FIG. 3. A–F. *Phyllostachys aurea*; from Arkansas plants. **A.** Close-up of culm showing node and internodes. **B.** Younger culm—the glaucous-green coloration below each node is typical. **C.** Older culm—these often are pale green or glaucous-green in color but sometimes are darker green. **D.–E.** Culms showing the shorter lower internodes characteristic of *P. aurea*. Generally, there are at least some culms in each colony that show this characteristic. **F.** Rhizome segment with roots and young, developing shoots. This species differs from other *Phyllostachys*, including those with brighter yellow culms, in having irregularly contracted (compressed) basal culm nodes (Stapleton & Barkworth 2007).

similar to *P. aureosulcata*; however, it can be distinguished by its internodal grooves being green or concolorous with the rest of the culm versus the contrasting yellow grooves on an otherwise generally green culm in *P. aureosulcata*. Additionally, the lower nodes of culms frequently are contracted (shortened) in *P. aurea* and not geniculate basally as in narrower culms of *P. aureosulcata*. The growth form of *P. aurea* tends to be slightly less dense regarding culm spacing than observed for *P. aureosulcata* (Fig. 8). In addition to Arkansas, *P. aurea* is documented outside of cultivation in California and Oregon and over much of the eastern U.S.A., from Arkansas, Illinois, Louisiana, and Texas to the Carolinas, Florida, and Maryland (Thomas & Allen 1993; Borowski et al. 1996; Stapleton & Barkworth 2007; Ogle et al. 2020; Keener et al. 2025; Weakley & Southeastern Flora Team 2025; Wunderlin et al. 2025).

Voucher specimens. **U.S.A. ARKANSAS. Clark Co.:** Arkadelphia, along I-30 E, immediately N of exit 73, 34.126, –93.089, large, extensive colony of 100s or more culms covering many square meters of disturbed roadside and adjacent wooded slope, near homesite—well-naturalized but likely originating from once-cultivated plants, 22 Oct 2025, Serviss 8858 (HEND); Arkadelphia vicinity, along I-30 E, ca. 1.3 km N of exit 73, 34.133, –93.085, large colony consisting of 100s of culms growing along disturbed roadside and into adjacent woods, many culms golden-yellow, near homesite—well-naturalized but likely originating from once-cultivated plants (not same colony as Serviss 8858), 22 Oct 2025, Serviss 8859 (HEND); Arkadelphia, 40 m W of the intersection of Crawford St. and South 24th St., 34.11767, –93.07833, large, expansive colony consisting of probably a few thousand culms naturalized along edge of streamside in highly disturbed urban greenbelt at edges of residential area, tallest culms ca. 6–8 m, 6 May 2025, Kratz 05-2025-02 (HEND); Caddo Valley, disturbed roadside on HWY 7 across from Channel Rd., 34.20943, –93.07968, large colony of 100s or more culms establishing via offsets on steep bank in semi-disturbed woods adjacent to roadside, some culms likely over 10 m tall, 2 Aug 2025, Kratz 08-2025-01 (HEND); Arkadelphia, 45 Blue Bird Hill, 34.160, 93.096, growing on roadside adjacent to drainage ditch and large field, colony dense, 22 Apr 2025, Ashley 32 (HEND). **Dallas**

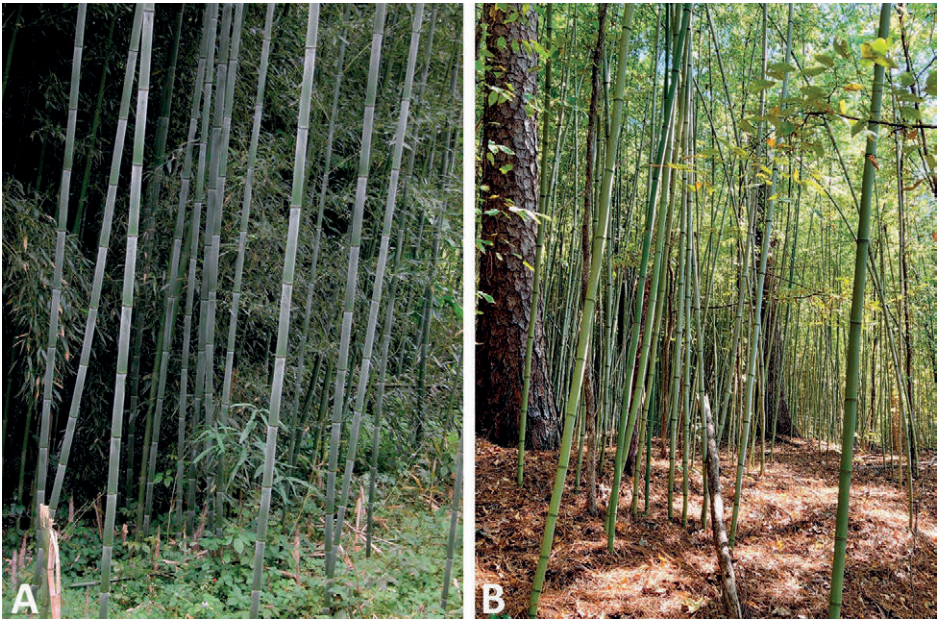


FIG. 4. A–B. *Phyllostachys aurea* naturalized in Clark Co., Arkansas. **A.** Mostly young culms at the edge of a naturalized colony growing in a highly disturbed, urban greenbelt adjacent to a residential area. Although not clearly apparent, these plants likely established from once-cultivated ones. **B.** Plants with many older culms growing on a wooded slope. This colony was large and covered an area of many square meters. Although clearly naturalized, its origins can be traced to an old homesite and vegetative spread via rhizomes from likely once-cultivated plants.

Co.: Fordyce, in roadside ditch, 325 m N of Gober Rd., 33.83686, –92.40951, colony consisting of 100s of culms establishing via offsets on a steep slope of roadside ditch, 19 Jul 2025, *Kratz 07-2025-10* (HEND); Fordyce, disturbed roadside ditch at intersection of Moro St. and E 1st St., 33.81285, –92.40844, colony consisting of 100s of culms establishing via offsets along disturbed roadside ditch, 19 Jul 2025, *Kratz 07-2025-11* (HEND); HWY 7 near Sparkman, 33.896, –92.858, naturalized colony along disturbed roadside and into adjacent woods, many older culms golden-yellow, 1 Aug 2025, *Tumilson 1-08-01-2025* (HEND). **Faulkner Co.:** Mayflower, roadside at 96 HWY 89 S, 34.96739, –92.39932, colony consisting of 100s of culms establishing via offsets in a disturbed residential area, apparently escaped from cultivation, 12 Jul 2025, *Kratz 07-2025-02* (HEND); Conway, in roadside ditch at the intersection of Daughtery Hill Rd. and HWY 286, 35.05486, –92.37296, large, naturalized colony of over 1,000 culms, spreading and establishing via offsets along disturbed roadside, 12 Jul 2025, *Kratz 07-2025-04* (HEND); Greenbrier, 35.25303, –92.38821, colony consisting of 100s of culms establishing and spreading via offsets along slope in disturbed urban area greenbelt, 12 Jul 2025, *Kratz 07-2025-06* (HEND). **Garland Co.:** Hot Springs, Golf Links Rd., 600 m E of intersection with Shady Grove Rd., 34.47242, –93.03527, naturalized colony of 100s of culms in disturbed, urban greenbelt on roadside near stream, with many other exotics present, 2 Aug 2025, *Kratz 08-2025-04* (HEND); Hot Springs, Valleyview St. 70 m W of 109 Valleyview St., 34.48220, –93.02762, expansive naturalized colony establishing via offsets in a low, moist area of highly disturbed urban greenbelt, with many other nonnatives present, 2 Aug 2025, *Kratz 08-2025-05* (HEND); Lake Hamilton, on roadside near 6752 Central Ave/Hwy 7, 34.39001, –93.11945, large colony, 100s of culms establishing via offsets in disturbed area at old homesite, likely establishing from once-cultivated plants, 2 Aug 2025, *Kratz 08-2025-02* (HEND); Lake Hamilton, roadside and into nearby properties, 100 m W of the intersection of Amity Rd. and Ennis St., 34.42536, –93.09609, large, naturalized colony of 1,000 or more culms along disturbed roadside and into adjacent urban greenbelt, 2 Aug 2025, *Kratz 08-2025-03* (HEND). **Grant Co.:** Sheridan, on the roadside at intersection of HWY 167 S and Grant County Rd. 167098, 34.14324, –92.40463, colony of 100s of culms establishing via offsets along disturbed area of roadside, apparently escaped, 19 Jul 2025, *Kratz 07-2025-09* (HEND); Sheridan, on the roadside at the intersection of HWY 35 and HWY 167, 34.32701, –92.41649, escaped colony consisting of over 1,000 culms establishing via offsets along disturbed roadside, possible old homesite, 19 Jul 2025, *Kratz 07-2025-07* (HEND); Sheridan, on roadside at intersection of HWY 35 and Skyline Dr., 34.31536, –92.40461, escaped colony of 100s of culms establishing via offsets in a disturbed urban area in a roadside ditch, 19 Jul 2025, *Kratz 07-2025-08* (HEND). **Hempstead Co.:** along HWY 278 W, outside of Ozan, 33.851, –93.776, in roadside pasture spreading into right-of-way via rhizomatous offsets, possibly spreading from persistent plants, 26 Nov 2025, *Serviss 8865* (HEND). **Hot Spring Co.:** Malvern, old homeplace on Grant Cutoff 360 m W of intersection of S Grant Cutoff and Ridge Rd., 34.29663, –92.81572, colony establishing via offsets and possibly up to thousands of culms in area with many other exotics nearby, plants growing in roadside ditch and on drier soil; possibly spreading from

once-cultivated plants, 21 Apr 2025, *Kratz 04-2025-12* (HEND); Malvern, immediately NW of the intersection of Grenada Rd. and Zach Thomas Rd., 34.19118, -92.78161, naturalized colony consisting of thousands of culms established in a very rural area S of city, plants growing in dry and wet areas, colony spanning several hundred square meters, largest culms about 12 m tall, origin of plants unknown, 13 Apr 2025, *Kratz 04-2025-15* (HEND). **Montgomery Co.:** Mount Ida, 193-205 E Basin Dr., 34.56915, -93.42880, disturbed roadside near drainage ditch, colony growing amongst dense vegetation, 5 Feb 2025, *Ashley 02* (HEND). **Nevada Co.:** Prescott, along highly disturbed roadside of W Vine St. near the intersection with W 3rd St., 33.80330, -93.38518, colony consisting of 100s of culms establishing via offsets along disturbed roadside in urban residential area, 19 Jul 2025, *Kratz 07-2025-15* (HEND). **Ouachita Co.:** Camden, highly disturbed urban greenbelt at intersection of Cash Rd. and Elm St., 33.57888, -92.85039, escaped colony consisting of 100s of culms establishing via offsets in disturbed area along roadside, likely established from once-cultivated plants, 19 Jul 2025, *Kratz 07-2025-13* (HEND). **Pike Co.:** near intersection of HWY 19 and HWY 301, 33.992, -93.466, large naturalized colony of probably over 1,000 culms along roadside right-of-way and adjacent greenbelt, 26 Nov 2025, *Serviss 8866* (HEND). **Pulaski Co.:** Little Rock, on fencerow in highly disturbed area at edge of parking lot, 34.72052, -92.34347, large colony of several hundred culms along fencerow in small, urban greenbelt; likely spreading from nearby plants in cultivation, 13 Oct 2025, *Kratz 10-2025-02* (HEND); Little Rock, Roadside of Cantrell Rd. exit on I-430, 34.78477, -92.39088, colony consisting of 100s of culms establishing via offsets in a disturbed residential area along slope of roadside ditch, escaped from cultivation, 12 Jul 2025, *Kratz 07-2025-01* (HEND). **Saline Co.:** Haskell, on fencerow, S side of Harmony Village Dr. at intersection with HWY 67, 34.52926, -92.65011, large, escaped population of several hundred culms along disturbed urban fence adjacent to residential area, likely established from once-cultivated plants, 20 Sep 2025, *Kratz 09-2025-09* (HEND). **Union Co.:** Felsenthal National Wildlife Refuge, on HWY 82, a short distance from Ouachita River bridge, linear colony of naturalized plants on disturbed roadside between highway and flooded lowland, not near any apparent source of cultivation, 1 Aug 2025, *Tumlison 2-08-01-2025* (HEND); Strong, on HWY 82, 33.163, -92.571, large colony of many short and taller culms growing along disturbed roadside and into adjacent woods, 1 Aug 2025, *Tumlison 3-08-01-2025* (HEND).

***Phyllostachys aureosulcata* McClure (Yellowgroove Bamboo). Figs. 5–7, 8B.**

Culms to 9(–10) m tall and 1–4 cm in diameter, green or gray-green to glaucous, with a contrasting vertical yellow streak on one side, sulcate portions on young culms yellow—culms not concolorous, usually geniculate at basal 2 or 3 nodes of slender culms; internodes to 40 cm, initially white powdery, pubescent or scabridulous with tubercles left by fallen hairs; nodal ridge slightly more prominent than sheath scar; culm sheaths purple-green when young, sometimes with yellow streaks, cream to pale beige with age, with contrasting pattern of pale, nearly white lines and darker areas between.

Phyllostachys aureosulcata previously was not known from the Arkansas flora, and our records represent the first documented occurrences of this species outside of cultivation in the state. Like *P. aurea*, this species is relatively widespread and abundant in central and southwestern Arkansas, where it is herein documented from Arkansas, Clark, Columbia, Conway, Faulkner, Hempstead, Hot Spring, Lafayette, Miller, Montgomery, Ouachita, Pike, Pulaski, and Saline counties (Figs. 5–6, 17). Naturalized occurrences of *P. aureosulcata* also are documented from Crawford and Washington counties in northwestern Arkansas (Jennifer Ogle, Pers. Comm.; iNaturalist 2026; Fig. 17). As with *P. aurea*, not all occurrences of escaped or naturalized plants of *P. aureosulcata* were vouchered, if observed from multiple sites in a given county. It likely has gone unnoticed in the state, at least in part, because of overall similar morphology and habit to *P. aurea*, from which it differs, among other characteristics, by the contrasting vertical yellow lines and yellow sulcate areas on its culms and the frequently geniculate bases of narrower culms (in *P. aurea*, the stems are concolorous, including the sulcate portions, and the culm bases are not geniculate; Fig. 8).

Phyllostachys aureosulcata shows a similar invasive tendency in Arkansas as *P. aurea* and readily colonizes both open and wooded habitats and is tolerant of a wide range of edaphic conditions and topographies, and based on our observations, may have a slightly higher tolerance for wetter soils. Habitat includes mostly urban and semi-urban areas, woods and edges, upland sites and slopes, pastures, fields, lake margins, stream-sides, roadsides, and disturbed sites and waste places (Fig. 5). Larger colonies can occupy areas of many square meters, with the largest colony observed covering an estimated 5,600 m² (Fig. 6). In addition to Arkansas, *P. aureosulcata* is documented from the naturalized floras of Alabama, the Carolinas, Georgia, Illinois, Kentucky, Maryland, Mississippi, Pennsylvania, Tennessee, Texas, Virginia, and West Virginia (Simmons et al. 2020; Keener et al. 2025; Weakley & Southeastern Flora Team 2025).

Voucher specimens. **U.S.A. ARKANSAS. Clark Co.:** Arkadelphia, along I-30 E, N of exit 73, 34.129, -93.087, large, extensive colony of 100s of culms covering many square meters of disturbed roadside and adjacent low woods, near homesite—well-naturalized but likely originating from once-cultivated plants, located closely to a naturalized population of *P. aurea*, 22 Oct 2025, *Serviss 8860* (HEND);



FIG. 5. Naturalized plants of *Phyllostachys aureosulcata* in Clark Co., Arkansas. Large, expansive colony consisting of 100s of culms along I-30 and adjacent woods. Mowing and disturbance of the right-of-way has removed a portion of the colony in the foreground. Plants have spread and established presumably from once-cultivated ones, as a homestead is present a short distance away. The overall yellow coloration of the culms can be encountered in both *P. aureosulcata* and *P. aurea*.



FIG. 6. Naturalized plants of *Phyllostachys aureosulcata* in Pike Co., Arkansas. This presumed single colony is present along a roadside and bank of a rocky stream and extends into the adjacent disturbed woods. The colony occupies a length that extends for about 560 m (0.56 km) and is estimated to cover an area of at least 5,600 m², which is the largest colony observed for any *Phyllostachys* species in this study. It likely consists of 10,000s of culms.



FIG. 7. A–C. *Phyllostachys aureosulcata*; from Arkansas plants. **A.** Close-up of culms showing nodes and internodes and conspicuous longitudinal yellow markings, which often are present, even on some of the larger culms. **B.** Somewhat older culms that have lost much of their yellow coloration. **C.** Mostly older, narrower culms showing the characteristic geniculate architecture. Plants in A–B are from the same naturalized colony in Clark Co.; plants in C are from Hempstead Co.

Arkadelphia, off 10th St., on fencerow immediately S of Cannon Auto, 34.14789, –93.06441, colony of hundreds of culms growing along a fencerow and roadside ditch—some culms also growing in drier areas at edge of colony, likely spreading from once-cultivated plants, tallest culms ca. 16–17 m, 21 Apr 2025, *Kratz 04-2025-13* (HEND). **Columbia Co.:** Magnolia, growing along fencerow in field near old building adjacent to the Magnolia Memorial Park Cemetery office on N Dudney Rd., 33.27373, –93.23138, escaped colony of 100s of culms establishing via offsets in highly disturbed, urban habitat, with many exotics present, 9 Sep 2025, *Kratz 09-2025-01* (HEND). **Conway Co.:** Springfield, on roadside 1-30 N of intersection of HWY 92 and Union Chapel Rd., 35.24086, –92.57374, large, expansive colony consisting of 1,000 or more culms spreading via offsets on disturbed roadside, likely established from cultivated plants, 12 Jul 2025, *Kratz 07-2025-05* (HEND). **Faulkner Co.:** Mayflower, at intersection of Adams Lake Rd. and Adams Lake Lp., 35.00330, –92.37768, large, escaped colony consisting of maybe 1,000 or more culms establishing via offsets along disturbed roadside in residential area, likely established from cultivated plants, dull yellow culms, 12 Jul 2025, *Kratz 07-2025-03* (HEND). **Hempstead Co.:** Hope, near intersection of HWY 67 and HWY 278, 33.688, –93.577, plants escaped and growing along highly disturbed drainage above the water line, likely spreading from once-cultivated plants, 26 Nov 2025, *Serviss 8862* (HEND); on HWY 27, NE of Nashville, 33.986, –93.789, large, expansive naturalized colony at edge of right-of-way and disturbed rocky stream and drainage, 26 Nov 2025, *Serviss 8863* (HEND). **Hot Spring Co.:** Friendship, in roadside ditch at intersection of Harper St. and HWY 67, 34.22534, 92.99834, 100s of culms, establishing via offsets in disturbed area of wet roadside ditch, escaped from nearby cultivated plants, tallest culms only ca. 2.5 m, possibly stunted from wet soils, 21 Apr 2025, *Kratz 04-2025-14* (HEND); Jones Mill, on disturbed roadside of HWY 270 B near the intersection with HWY 51, almost at Garland Co. line, 34.45978, –92.89726, escaped colony of 100s of closely-spaced culms growing in disturbed area on roadside, 2 Aug 2025, *Kratz 08-2025-06* (HEND); Malvern, 300 m NW of the intersection of Mt. Zion Rd. and Ridge Rd., 34.33178, –92.82079, escaped colony consisting of 100s of culms spreading across a field towards a small creek, no apparent source for the plants, tallest culms ca. 9 m, 18 Apr 2025, *Kratz 04-2025-11* (HEND). **Lafayette Co.:** Stamps, greenbelt behind businesses 90 m SE of the intersection of Central Ave. and HWY 82, 33.36473, –93.48840, large, expansive colony of 1,000 or more closely-spaced culms in disturbed urban greenbelt, 9 Sep 2025, *Kratz 09-2025-03* (HEND). **Miller Co.:** Texarkana, on County Rd. 640, E of intersection of HWY 82 and Miller County Rd. 15, 33.42883, –93.88412, extensive, naturalized colony of up to 1,000 or more culms establishing via offsets along disturbed roadside and ditch, 9 Sep 2025, *Kratz 09-2025-04* (HEND); Texarkana, on roadside 235 m E of the intersection of Skyline Dr. and Sugar Hill Rd., 33.48930, –94.03675, small colony with young culms establishing via offsets along disturbed roadside adjacent to residential area, 9 Sep 2025, *Kratz 09-2025-05* (HEND); Texarkana, on roadside 70 m W of intersection of Sanderson Ln. and Sugar Hill Rd, 33.48905, –94.01179, escaped colony consisting of 100s



FIG. 8. A–B. Comparison of culms and culm sheaths between *P. aurea* and *P. aureosulcata*; from Arkansas plants. **A.** Stems and culm sheaths of *Phyllostachys aurea*. Notice the concolorous stems, including the internodal groove, and lower internodes (second stem from the top, left side) are shorter than those higher on the stem—most colonies of *P. aurea* will have at least some culms with contracted lower nodes. In general, the first 1–3 internodes on stems are shorter than the higher ones. Upper stem has a culm sheath—the culm sheaths of *P. aurea* are stramineous when dry. **B.** Stems and culm sheaths of *Phyllostachys aureosulcata*. Notice the conspicuous yellow longitudinal bands and yellow internodal grooves on otherwise green culms, along with the geniculate aspect of the narrower culms. The contrasting pattern of pale, nearly white lines and darker areas between them is typical for the culm sheaths.

of culms establishing via offsets in disturbed urban habitat of roadside and ditch adjacent to expansive residential area, 9 Sep 2025, *Kratz 09-2025-06* (HEND). **Montgomery Co.:** Mount Ida, 22-68 W Basin Loop, 34.55511, -93.63142, growing in roadside thicket among larger pines, colony dense, 5 Feb 2025, *Ashley 01* (HEND). **Ouachita Co.:** Camden, highly disturbed urban greenbelt on Jackson St., 33.58393, -92.84510, large, very expansive colony covering dozens of square meters and consisting of 1,000s of culms spreading and establishing via offsets in highly disturbed urban greenbelt along and away from small stream, with many other invasives, horticultural discards or cultivated plants likely the source—old homesite in vicinity, 19 Jul 2025, *Kratz 07-2025-14* (HEND); Camden, highly disturbed urban greenbelt at intersection of Cash Rd. and Elm St., 33.57773, -92.85116, large, expansive colony of possibly more than 1,000 culms spreading via offsets in a disturbed urban greenbelt, with many other nonnatives, 19 Jul 2025, *Kratz 07-2025-12* (HEND). **Pike Co.:** Delight, on HWY 26, N of HWY 195 S, 34.032, -93.500, expansive naturalized colony along roadside and adjacent disturbed woods and along rocky streamside, ca. 1,850 ft (0.35 mi) long and consisting of probably 10,000s of culms, 26 Nov 2025, *Serviss 8864* (HEND); on HWY 26, E of Murfreesboro, 34.071, -93.679, naturalized colony along roadside, 26 Nov 2025, *Serviss 8865* (HEND). **Pulaski Co.:** Little Rock, top of hill in Allsopp Park, 100 m NE of the intersection of Kavanaugh St. and Walnut St., 34.75790, -92.32149, small colony of numerous culms establishing via offsets in a disturbed, semi-wooded area of park, with many invasives nearby, 13 Oct, 2025, *Kratz 10-2025-01* (HEND). **Saline Co.:** Bryant, in lawn of residence at 2532 Pine Meadow Dr. immediately SW of the intersection of Pine Meadow Dr. and HWY 5 N, 34.61890, -92.50879, escaped colony consisting of 100s of culms, plants established and spreading across yard and adjacent fencerow, tallest culms ca. 9 m, 15 Apr 2025, *Kratz 04-2025-07* (HEND).



FIG. 9. Naturalized *Phyllostachys bambusoides* in Clark Co., Arkansas. Rhizomatous offset invading the upper bank of a small, intermittent stream at the edge of a large, escaped colony of the species. As with many naturalized occurrences of *Phyllostachys* in Arkansas, escaped plants originated via an extensive rhizome system and associated offsets from once-cultivated plants.

***Phyllostachys bambusoides* Siebold & Zucc. (Giant Timber Bamboo) Figs. 9–12, 13A.**

Bambusa reticulata Rupr.; *Phyllostachys reticulata* (Rupr.) K. Koch.

Culms to 22 m tall and 15 cm in diameter; base sinuous in some cultivars; internodes glabrous, usually green or grayish-green to mostly gray in color with age, lustrous when young; nodal ridges usually prominent. The culms of some cultivars have golden yellow coloration or yellow and green stripes, which persist with age; culm sheaths semi-lustrous, pale yellow-brown or red-beige in color, with green or purple streaks and coloration along the margins, sometimes mottled with additional, variably-sized purple-brown spots.

Phyllostachys bambusoides previously was not known from the Arkansas flora, and our records represent the first documented occurrences of this species outside of cultivation in the state (Figs. 9–12). Unlike *P. aurea* and *P. aureosulcata*, the current naturalized distribution of *P. bambusoides* in Arkansas is known to be three sites, two in Clark County and one in Columbia County (Fig. 18). Where observed in Arkansas, *P. bambusoides* shows a similar habit of establishment via rhizomatous offsets as *P. aurea* and *P. aureosulcata*; although its occurrence in cultivation is much less frequent, which likely explains its apparently more limited naturalized occurrence in the flora. *Phyllostachys bambusoides* should be expected outside of cultivation from additional



FIG. 10. A–B. Naturalized plants of *Phyllostachys bambusoides* in Clark County (different population than shown in Fig. 9). **A.** Smaller and larger culms—notice the sides of the smaller culms facing direct sunlight (left) are golden-yellow, whereas the shaded portions are green. The degree of light exposure can affect the coloration of culms in species of *Phyllostachys*. **B.** Culms with numerous foliage leaves at the edge of the colony adjacent to the right-of-way.



FIG. 11. A–E. Leaves and stems of *Phyllostachys bambusoides*; from Arkansas plants. **A.** Upper culm with foliage leaves. **B.** Foliage leaves. **C.** Close-up of culm node. **D.** Older culm showing yellow coloration that sometimes is present. **E.** Older culms in a large, naturalized colony along I-30 in Clark Co. Note: the pruning shears shown in Fig. 11E are ca. 0.6 m long.

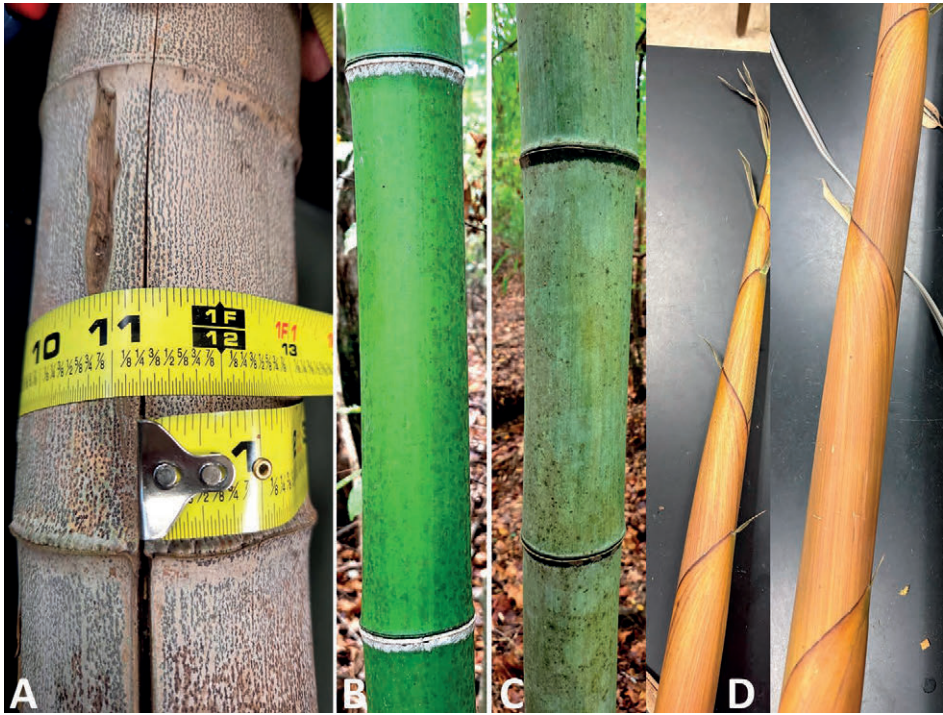


FIG. 12. A–D. Stems and culm sheaths of *Phyllostachys bambusoides*; from Arkansas plants. **A.** Large and older stem with a circumference of ca. 28 cm; culms sometimes can be larger. **B.** Young culm showing nodes and internodes. **C.** Slightly older culm—notice it is lighter in color with some degree of darker splotching. **D.** Culm sheaths—notice the pale reddish-beige color, with purple streaks and coloration along the margins and semi-lustrous appearance; culm sheaths sometimes are mottled with purple coloration.

counties. In addition to Arkansas, *P. bambusoides* is documented from the naturalized floras of Alabama, California, the Carolinas, Georgia, Louisiana, Mississippi, Pennsylvania, and Tennessee (Stapleton & Barkworth 2007; Keener et al. 2025; Weakley & Southeastern Flora Team 2025).

Phyllostachys bambusoides can be distinguished from the other species of *Phyllostachys* in Arkansas by the overall larger size (height and width) of its culms, with at least a few culms in any colony of age being taller (greater than 12 m) and wider than 5 cm in diameter, which are larger than the other naturalized species (Fig. 12). Younger colonies of *P. bambusoides* with smaller culms could be confused with *P. aurea*; however, they may be distinguished by the presence of auricles (on upper culm leaves) and fimbriae present on culm leaves; the culm leaves of *P. aurea* lack auricles and fimbriae, or if present, these are deciduous (Fig. 13).

Voucher specimens. **U.S.A. ARKANSAS. Clark Co.:** Caddo Valley, 1 km E of the intersection with Heflin Rd. and US HWY 67, 34.18953, -93.05316, colony consisting of 100s of culms persisting and spreading from cultivation in a highly disturbed edge area along roadside and adjacent residence, some culms also growing on upper bank of adjacent stream/drainage, tallest culms ca. 15–17 m; 6 May 2025, *Kratz 05-2025-01* (HEND); Arkadelphia, along I-30 W, just N of Country Club Rd., 34.144, -93.081, large, expansive colony consisting of many large and smaller culms, larger culms ca. 7–9 cm in diameter and 27 cm or more in circumference, growing on roadside slope in and at the edge of disturbed woods, 27 Oct 2025, *Serviss 8861* (HEND). **Columbia Co.:** Magnolia, on roadside, 90 m S of the intersection of E Calhoun St. and S Calhoun St., 33.26495, -93.23731, numerous large and small culms, plants establishing via offsets in a disturbed area of greenbelt in residential area, escaped but likely originating from once-cultivated plants, largest culms ca. 24 cm in circumference, 9 Sep 2025, *Kratz 09-2025-02* (HEND).



FIG. 13. A–B. Comparison of foliage (upper culm) leaves of *P. aurea* and *P. bambusoides* (photographs taken October 2025); from Arkansas plants. **A.** Upper culm leaves of *P. bambusoides* which possess persistent auricles and well-developed fimbriae (fimbriae will be evident at least on foliage leaves of upper culms). **B.** Upper culm leaves of *P. aurea*—notice the lack of auricles and fimbriae; they sometimes can be present but are deciduous. Young colonies or plants with smaller culms of *P. aurea* and *P. bambusoides* can be difficult to distinguish, without careful examination of the culm sheaths, culm bases, and foliage leaves.

***Phyllostachys nigra* (Lodd. ex Lindl.) Munro. var. *nigra* (Black Bamboo). Figs. 14–15.**

Bambusa nigra Lodd. ex Lindl.

Culms 4–8(–10) m tall and to 5 cm or more in diameter; internodes green or gradually developing purple-brown to black spots or turning uniform purple-brown to nearly black, 25–30 cm, initially white powdery, densely puberulent; wall ca. 3 mm thick; nodal ridge slightly more prominent than or equaling sheath scar; culm sheaths red-brown, sometimes tinged with green, unmarked or densely marked with minute dark brown spots.

Phyllostachys nigra previously was not documented from the Arkansas flora, and a single record from Montgomery County represents the only known occurrence of this species outside of cultivation in the state (Fig. 19). This species also infrequently is cultivated in Arkansas, which probably explains its scarcity in the flora. *Phyllostachys nigra* var. *nigra* should be expected outside of cultivation in other counties, however, in the vicinity of where cultivated. In addition to Arkansas, *P. nigra* is documented from the naturalized floras of Alabama, the Carolinas, Georgia, Mississippi, Pennsylvania, Texas, Virginia, and West Virginia (Keener et al. 2025; Weakley & Southeastern Flora Team 2025).

Like other *Phyllostachys*, *P. nigra* spreads and establishes via a rhizome system and associated offsets, although it easily is distinguished from other species in the genus by the dark greenish-purple or purple-mottled to nearly black coloration that develops on older culms (young culms are green in color but darken as they age; Fig. 15). Culms of *P. nigra* can become glaucous with age, as well as after drying. *Phyllostachys nigra* var. *henonis* (Mitford) Stapf ex Rendle, not currently known from Arkansas, differs from variety *nigra* by having consistently green culms that do not darken with age.

Voucher specimen. **U.S.A. ARKANSAS. Montgomery Co.:** Mount Ida, 22-68 W Basin Loop, 34.57000, –93.43694, disturbed roadside, escaped, growing next to and within pines, colony elongate and not wide but culms dense, 25 Feb 2025, Ashley 41 (HEND).



FIG. 14. Naturalized plants of *Phyllostachys nigra* in Montgomery Co., Arkansas. This colony is present along a disturbed roadside and is invading the surrounding areas via rhizomes and offsets. Several smaller offsets can be seen at the edge of the colony proximal to the road.

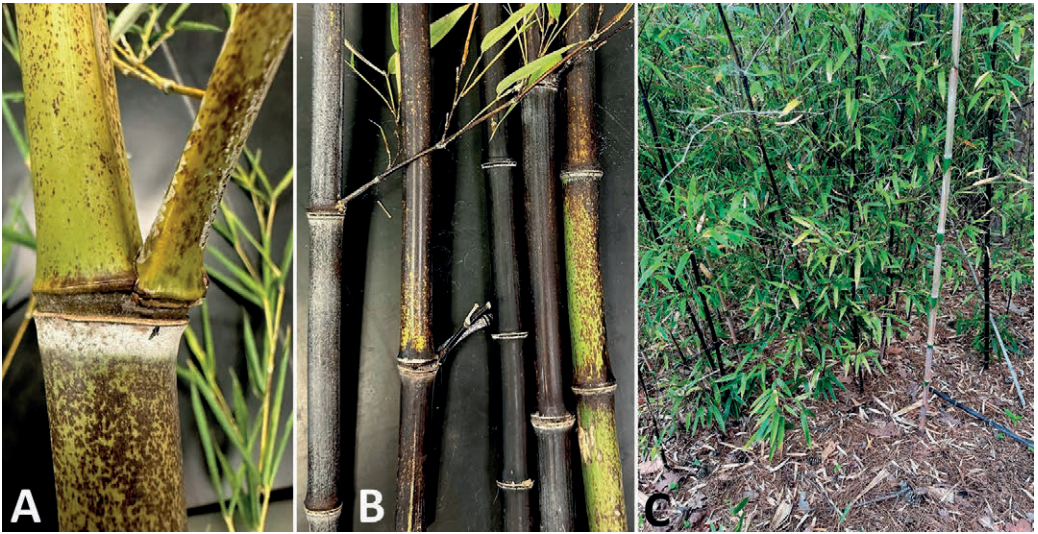


FIG. 15. A–C. Stems, leaves, and plants of *Phyllostachys nigra*; from Arkansas plants. **A.** Close-up of node and internodes from plants in Fig. 14—notice the dark brownish-purple mottling. **B.** Older culms showing coloration patterns of dark brown-black to nearly black; the culm on the far left is glaucous gray, which can occur on older or dried culms. **C.** Naturalized plants of *P. nigra* along a disturbed roadside in Montgomery Co., Arkansas—notice the almost solid black culms. Spread and establishment of plants was via rhizomes. The dark brownish-purple culms unequivocally distinguish *P. nigra* from other naturalized species of *Phyllostachys* in the state.

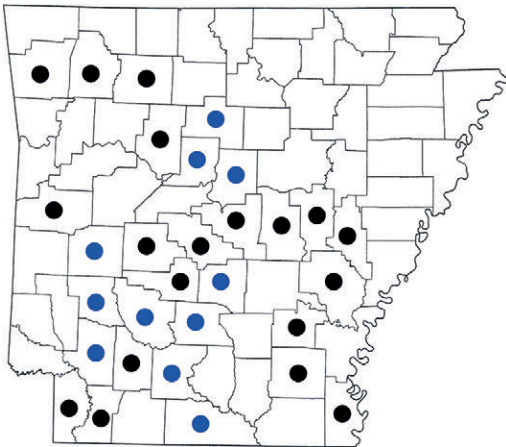


FIG. 16. County distribution of naturalized *Phyllostachys aurea* in Arkansas. Counties in blue represent new records from 2025; counties in black represent the previous known naturalized distribution. Records for Conway and Van Buren counties are based on visual identifications only; voucher specimens were not collected for those locations.

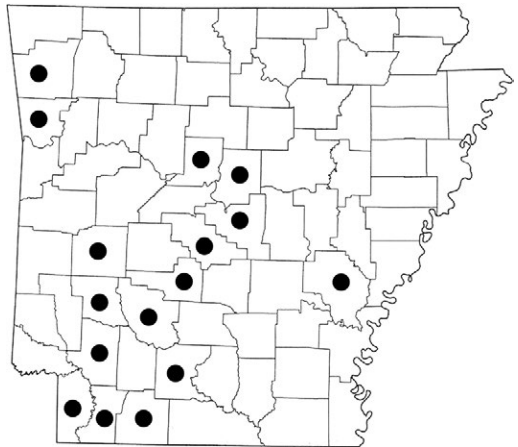


FIG. 17. County distribution of naturalized *Phyllostachys aureosulcata* in Arkansas, based on 2025 records.

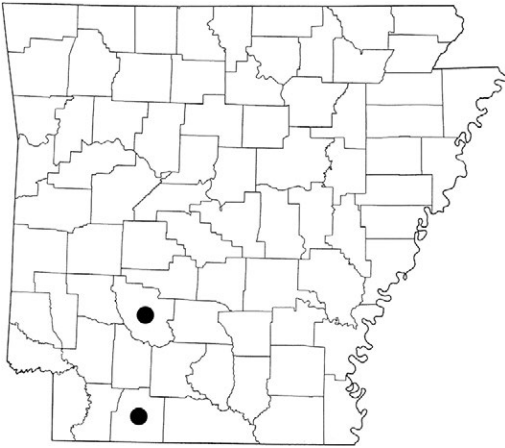


FIG. 18. County distribution of naturalized *Phyllostachys bambusoides* in Arkansas, based on 2025 records.



FIG. 19. County distribution of naturalized *Phyllostachys nigra* in Arkansas, based on 2025 records.

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