

Pinehill bluestem

Schizachyrium scoparium (Michx.) Nash var. *divergens* (Hack.) Gould

Plant Symbol = SCSCD

Common Names: Pinehill bluestem, eastern little bluestem

Scientific Names:

Andropogon divergens (Hack.) Andersson ex Hitchc.

Andropogon scoparius Michx. var. *divergens* Hack.

Andropogon scoparius Michx. var. *virilis* Shinnery

Schizachyrium scoparium (Michx.) Nash subsp. *divergens* (Hack.) Gandhi & Smeins

Schizachyrium scoparium (Michx.) Nash var. *virile* (Shinnery) Gould



Pinehill bluestem during seed set.

Description

General: Pinehill bluestem is a native, warm season perennial grass with short rhizomes. Pinehill bluestem has erect stems averaging 4 feet in height. Leaves are narrow, 1/8 to 1/4 inch wide and 10 to 24 inches long. The leaves can be flat or folded with long or short fine pubescence. Basal leaves are numerous, but decrease as they progress up the plant. Pinehill bluestem appearance varies from pubescent to almost glabrous and in color from green to glaucous. The seedhead is composed of sessile spikelets 1/4 to 5/16 inch long with stiff awns. The pedicellate and sessile spikelets are equal in length and the glumes, lemma, and palea are well developed (Grelen and Duvall 1966) (See illustration at right).

Distribution: Pinehill bluestem is found throughout the pinelands of the southeastern United States, predominantly in Mississippi, Alabama, Florida, Louisiana, eastern Texas, and southwestern Arkansas (McMillan 1964). It has been reported as far north as Illinois and east as North Carolina (Grelen 1974). For current distribution, please consult the Plant Profile for this species on the PLANTS Web site: <http://plants.usda.gov/core/profile?symbol=SCSCD>

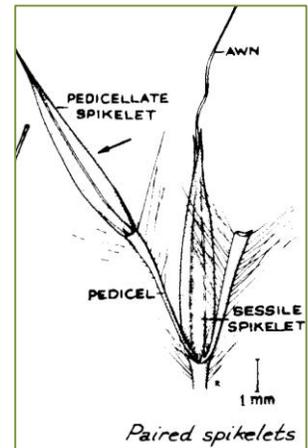
Habitat: Pinehill bluestem is found on upland sites and is usually the dominant native grass in shaded mature pine forests. In open areas it shares dominance with slender bluestem (*Schizachyrium tenerum*) (Grelen and Duvall 1966). Panicums (*Panicum* spp.), paspalums (*Paspalum* spp.), pineywoods dropseed (*Sporobolus junceus*), swamp sunflower (*Helianthus angustifolius*), and hairy small-leaf ticktrefoil (*Desmodium ciliare*) also grow in association with pinehill bluestem in the western gulf region (Cassady 1951).

Adaptation

Pinehill bluestem grows best on well drained, medium to coarse textured soils and does not tolerate excessive wetness. It tolerates up to 60% shade (Leithead et al 1971).

Uses

Livestock: Pinehill bluestem is a valuable native forage grass for cattle during spring and summer in southern pine forests west of the Mississippi River (Grelen and Duvall 1966). Because of its moderate shade tolerance (Halls et al. 1964), pinehill bluestem may have application for silvopasture in the southern U.S.



Pinehill bluestem spikelet illustration (Grelen and Duvall 1966).

Wildlife: Bluestem grasses provide protection for small mammals, nesting areas for ground nesting birds, and a food source for turkey (Grelen 1973; Harshbarger and Simpson 1970; USDA-NRCS 1999). Native bees use bluestems for nesting materials (Ladybird Johnson Wildflower Center 2016).

Native habitat restoration: Pinehill bluestem can be used for native habitat restoration. It is one of the dominant grasses of native longleaf pine-bluestem range, and an important fine fuel source for reintroducing fire back into the longleaf ecosystem (Grelen 1973).

Ethnobotany

Native Americans used bluestems for moccasin insulation in the winter. Ashes from the burnt stems were applied on open sores or mixed with water and drunk to treat indigestion (Casey and Wynia 2010).

Status

Threatened or Endangered: No. (US Fish and Wildlife Service 2016)

Wetland Indicator: Pinehill bluestem is considered a facultative upland (FACU) plant in the continental United States (US Army Corps of Engineers 2014).

Please consult the PLANTS Web site (<http://plants.usda.gov/>) and your state's Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Weedy or Invasive:

This plant may become weedy or invasive in some regions or habitats and may displace desirable vegetation if not properly managed. The seed is light and may spread to surrounding areas, especially a garden or landscaping area. Please consult with your local USDA-Natural Resources Conservation Service (NRCS) Field Office, Cooperative Extension Service office, state natural resource, or state agriculture department regarding its status and use.

Planting Guidelines

Begin seedbed preparation well in advance of planting. Establish a weed free seedbed by tillage or herbicides. Prior to planting in the spring, the seedbed must be firmed and have accumulated soil moisture for improved establishment success.

Pinehill bluestem seed is fluffy which makes it difficult to plant with a conventional grain drill. Native grass drills equipped with picker wheels or a fluffy seed box is the preferred method for planting pinehill bluestem seed. When using a seed drill without picker wheels or a fluffy seed box, seed should be debarbed to facilitate seed flow through the planter. Seed lubricants such as powdered graphite may also reduce bridging inside the seed box and drop tubes. Seed should be planted approximately 1/8 inch deep. Planting into a fluffy or loose seedbed may cause soil to sluff off into tracks left by the planter press wheels and bury the seed too deeply after the first rain event. It is better to plant shallow than too deep.

Pinehill bluestem seed may also be broadcast planted but is not recommended. If seed is broadcast planted, a carrier agent such as sand or cat litter is required to help seed flow more easily through spreaders and for improved seed distribution. If possible, seed should be incorporated with a drag or cultipacker after broadcast planting. Seeding rates should be increased by 25% or more. Timing broadcast plantings to rain events will help incorporate seed into the soil and improve establishment. Spraying slurry mixtures through hydromulchers may also be more effective in certain situations such as steep slope seedings.

For calibration purposes, a pinehill bluestem ecotype in seed production at the East Texas Plant Materials Center contains approximately 270,000 seeds per bulk lb. A seeding rate of 5.6 PLS lb/acre is recommended. When planting seed mixes, adjust the seeding rate according to the percent of pinehill bluestem in the mixture.

Management

Contact your local NRCS field office for assistance in developing a prescribed grazing plan. Do not graze pinehill bluestem during the year of planting. Pinehill bluestem is a key management forage plant on the longleaf and slash pine woodlands within its range and often accounts for over 50% of the total grass herbage weight (Grelen and Duvall 1966; Grelen and Enghart 1973). It is grazed primarily in the spring and summer when approximately 70% of the forage is produced (Cassady 1953). Pinehill bluestem averages up to 10% crude protein in young leaves, but is reduced to 5% or less in mature summer

foliage (Campbell et al. 1954). This grass may also be used as standing forage in late fall and winter (Byrd et al. 1984) but may require a protein supplement depending on the nutritional needs of the livestock.

Pinehill bluestem is not tolerant of continuous or close grazing. A short grazing season beginning on or before April 1 until the cattle stop gaining weight in the summer is the best use of bluestem ranges within the longleaf pine belt. Therefore for maximum production and to maintain stand health, only 50% of the current growth by weight should be harvested during a growing season. To control weeds, mow the stand at 8-10 inch stubble height or apply herbicides as labelled for grass. Pinehill bluestem responds to prescribed burning in the dormant season and allow at least 60 days deferment before grazing is initiated in the spring (Leithead et al. 1971).

Pests and Potential Problems

Phyllosticta andropogonivora has been reported to cause leaf spot on little bluestem (*Schizachyrium* spp.) (Horst 2001 and Krupinsky and Tober 1990).

Environmental Concerns

Pinehill bluestem produces light, fluffy seeds that are wind distributed. Pinehill bluestem is a native grass species and its escape from planted areas would not be considered hazardous or detrimental to the natural landscape.

Control

Pinehill bluestem may be controlled by mechanical means such as mowing or by applying a broad spectrum herbicide which are labelled for control of grasses. Contact your local agricultural extension specialist or county weed specialist to learn what works best in your area and how to use it safely. Always read label and safety instructions for each control method.

Seeds and Plant Production

Use soil test recommendations to determine soil fertility and pH of the site to be planted. If needed, amend pH to a level of 6.0 to 7.0 with lime according to soil test recommendations. For commercial plant or seed production, amend fertility (N, P, and K) according to soil tests after plants have had at least one growing season to establish. This will minimize competition from warm season weeds during the growing season.

Pinehill bluestem will be most productive in fields that receive partial shade (50% - 60%) during all or a portion of the day. Native species such as pinehill bluestem may be transplanted as seedlings to establish seed production fields where applicable. Transplanting reduces the time needed to achieve a solid stand, allows for use of pre-emergent herbicides, and reduces the amount of weed competition typically seen in fields planted from seed. Transplants may be grown in the greenhouse using standard greenhouse production practices. At the USDA-NRCS East Texas Plant Materials Center, seeds are planted in propagation trays in February to coincide with increasing day length. Seed is sown into trays filled with a soilless potting mix and sand and allowed to grow in the greenhouse for 10 to 12 weeks or until the seedlings develop a dense fibrous root plug. Before planting to the seed production field, seedlings are hardened off in a shade house for approximately two weeks.

Once transplants are beyond the seedling stage, cultivation and post-emergence herbicides are recommended to reduce weed competition and maintain stand integrity. Consult your local extension weed specialist for recommended herbicides. Always read and follow label directions when applying herbicides.

Pinehill bluestem is an indeterminate in seed maturity. Seed can be harvested using a combine or flail harvester. When harvesting with a combine, use low volume air settings to minimize seed loss. In contrast to a combine, the flail harvester is a nondestructive harvest method allowing multiple harvests of seed production fields. This machine harvests mature seed, leaving the immature seed for a later harvest. After harvest, the seed should be dried and debarbed to partially remove awns and other seed appendages before cleaning. A seed cleaner with air adjustments and



Harvesting fluffy seed of splitbeard bluestem with a flail harvester.

separation screens is used to remove stems, chaff, and unfilled seed. To enhance seed longevity, store seed in a humidity and temperature controlled environment.

Cultivars, Improved, and Selected Materials (and area of origin)

Currently pinehill bluestem cultivars and improved materials are not available in the commercial market (Native Seed Network 2016). Pinehill seed procured for planting purposes should be selected based on the local climate, resistance to local pests, and intended use. Consult your local USDA- NRCS office for recommendations when considering using native harvested seed for planting.

Literature Cited

- Byrd, N., C. Lewis, and H. Pearson. 1984. Management of southern pine forests for cattle production. Gen. Rep. R8-GR-4. USDA-USFS Southern Region. Atlanta, GA.
- Campbell, R., E. Epps, Jr., C. Moreland, J. Farr, and F. Bonner. 1954. Nutritive values of native plant on forest range in central Louisiana. Louisiana Agr. Exp. Sta. Bull. 488. 18 p.
- Casey, P. and R. Wynia. 2010. Culturally significant plants. USDA-NRCS Manhattan Plant Materials Center. Manhattan, KS.
- Cassady, J. 1951. Bluestem range in the piney woods of Louisiana and east Texas. J. Range Mgt. 4:173-177.
- Cassady, J. 1953. Herbage production on bluestem range in central Louisiana. J. Range Mgt. 6:38-43.
- Grelen, H. 1973. Pinehill bluestem, *Andropogon scoparius* var. *divergens* Anderss. Ex. Hack., and anomaly of the *A. scoparius* complex. The Amer. Midland Nat. 91:438-444.
- Grelen, H. 1974. Variation in pinehill bluestem, a southern ecotypes of the *Andropogon scoparius* complex. J. Range Mgt. 27:283-284.
- Grelen, H. and H. Enghart. 1973. Burning and thinning maintain forage in a longleaf pine plantation. J. Forest. 71:419-425.
- Grelen, H. and V. Duvall. 1966. Common plants of the longleaf pine-bluestem range. US Forest Service Research Paper SO-23. Southern Forest Experiment Station. New Orleans, LA.
- Halls, L., R. Hughes, R. Rummell, and B. Southwell. 1964. Forage and cattle management in longleaf-slash pine forests. Farmers Bull. No. 2199. USDA. Washington, D.C.
- Harshbarger, T., R. Simpson. 1970. Late summer nesting sites of quail in south Georgia. Res. Note SE-131. Asheville, NC. USDA-US Forest Service. Southeastern Forest Experiment Station. 4 pg.
- Horst, R. (ed.) 2001. Westcott's Plant Disease Handbook. 6th ed. Vol.1. Springer Science and Business Media, LLC. New York, NY.
- Krupinsky, J. and D. Tober. 1990. Leaf spot disease of little bluestem, big bluestem, and sand bluestem caused by *Phyllosticta andropogonivora*. Plant Dis. 74:442-445.
- Ladybird Johnson Wildflower Center. 2016. NPIN: native plant database-Schizachyrium scoparium. Ladybird Johnson Wildflower Center. Austin, TX.
- Leithead, H.L., L. Yarlett, and T. Shiflet. 1971. 100 Native forage grasses in 11 southern states. USDA-Soil Conservation Service. Agr. Handbook no. 389. U.S. Gov. Print Office. Washington, DC.
- McMillan, C. 1964. Ecotypic differentiation within four North American prairie grasses. I. Morphological variation within transplanted community fractions. Amer. J. Bot. 51:1119-1128.

Native Seed Network. 2016. Plant detail-little bluestem-Schizachyrium scoparium var. divergens. Accessed online 4/22/2016: http://www.nativeseednetwork.org/viewtaxon?taxon_code=SCSCD

US Corps of Engineers. 2014. Wetland status indicator. Accessed online 4/27/2016: http://rsgisias.crrel.usace.army.mil/nwpl_static/viewer.html#

US Fish and Wildlife Service. 2016. Environmental conservation online system species report. Dept. of the Interior-US Fish and Wildlife Service. Washington, D.C. Accessed online 4/25/2016: http://ecos.fws.gov/tess_public/reports/ad-hoc-species-report?kingdom=P&status=E&status=T&status=EmE&status=EmT&status=EXPE&status=EXPN&status=SAE&status=SAT&mapstatus=3&fcritab=on&fstatus=on&fspecrule=on&finvpop=on&fgroup=on&family=on&header=Listed+Plans

USDA-NRCS. 1999. Wild Turkey (Meleagris gallopavo). Fish and Wildlife Habitat Management Leaflet No. 12.

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