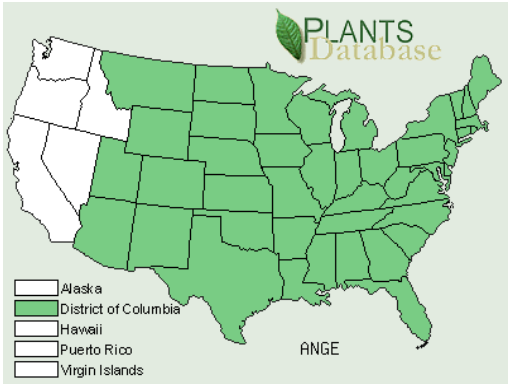
Warm-Season Bunch Grasses for the Deep South: Light at the End of the Tunnel

Planting native warm-season bunch grasses for quail habitat is not a new concept to most readers of Quail Unlimited Magazine. To quote the authors of University of Tennessee Extension publication, A Landowner's Guide to Native Warm-Season Grasses in the Mid-South, "… Native warm season grasses are established for wildlife primarily because of the structure of cover provided. Suitable cover is often a limiting factor for such species as quail…" This is in large part due to the fact that between 40 to 65% of quail mortality, especially during nesting season, is due to avian predators.

The bases of bunch grass provide ideal nesting sites because quail use mostly dead grasses, stems, and pine needles as nesting materials and prefer sites with some overhanging vegetation. Warm-season bunch grasses, by their clumping growth habit, also provide the open spaces necessary for quail, particularly chicks, to move through their brood area. Wildlife biologists have found that fields that are about two feet tall and having a density of between 250 and 10,000 bunch grass clumps (from one grass clump per every 13 square feet to as dense as one clump per 4 square feet) are ideal for nesting. This type of density allows ground level freedom of movement for the chicks, overhead concealment, and provides space for an assortment of low growing forbs and legumes to grow. Space for forbs and legumes is important because they are critical to attracting the insects, which compose the entire diet of the chicks for the first few weeks of life.

What may be a new concept to land managers is the fact that not all warm season grasses are created equal in terms of their adaptation to different areas of the South. As an analogy for this point, consider the survival of pen raised quail vs. wild quail. Wild birds have much higher survival rates because they have been exposed to the weather, predators, food sources, etc., that occur in their area. They "know" what to do and when to do it to maximize their chances of survival.

It is important that land managers understand that plants have many of the same issues as the quail. Although many of the important native warm-season bunch grasses you hear talked about in this magazine such as big bluestem, little bluestem, indiangrass, eastern gamagrass, and switchgrass can occur over much of the United States, a selection that originated in one area of the country may not be well adapted to another area. For example, the map in the adjacent figure shows the range of big bluestem. Commonly available selections of this grass include 'Rountree' and 'Kaw'. Rountree was developed from seed collected in Missouri, Iowa, and Illinois, while Kaw is from eastern Kansas. It is not hard to understand why selections of grass that originated in the Midwest might not survive as well in the deep South as material that grew up in our neck of the woods. Given the time and expense needed to establish native warm-season grasses, it just



Green indicates states where big bluestem is native (http://plants.usda.gov)

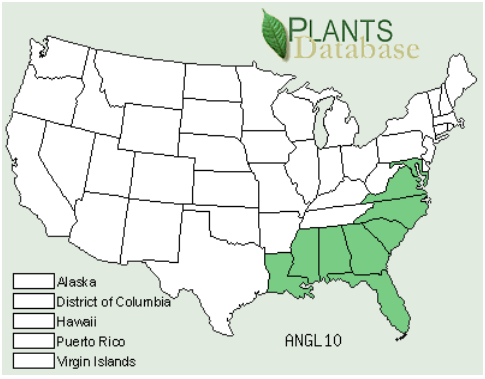
makes economic sense for a land manager to use the best adapted selection for their area of the country.

OK, you may ask yourself, if these warm-season grasses are native to the deep South, why can I only get seed for material adapted to the Midwest for my quail habitat plantings? One of the reasons we don't have easy access to adapted selections of warm-season bunch grasses for the deep South is because species such as yellow indiangrass, lopsided indiangrass, eastern gamagrass, purple bluestem, and switchgrass are highly preferred by cattle and can be easily grazed out when grazing is not managed. When the warm-season bunch grasses almost were grazed out of existence in the South, they were replaced by non-native sod forming grasses such as bahiagrass or bermudagrass, which tolerate much laxer grazing management. Due to better grazing management, the further west you go in the United States, the more common the native warm-season grasses remained. As a consequence, state and federal agencies in the Midwest and West have a long history of working with the native warm-season grasses because these grasses remained important to cattle producers.

In the South, rescuing native warm-season grasses for cattle pastures and wildlife habitat has been an important mission of the USDA, Natural Resources Conservation Service (NRCS), Plant Materials Program at the Brooksville Plant Materials Center in Brooksville, FL, and the Jimmy Carter Plant Materials Center in Americus, GA. These Plant Materials Centers have or are developing truly southern selections of yellow and lopsided indiangrass, big bluestem, split-beard bluestem, switchgrass, and eastern gamagrass.

The latest contribution from the USDA, NRCS Plant Material Program is "Ghost Rider" purple bluestem selected germplasm. Developed at the Brooksville Plant Materials Center, purple bluestem is a native warm-season, perennial bunch grass well adapted to the deep South. Purple bluestem received its common name from the purplish hue of the seed heads. It is often confused with chalky bluestem both of which have a white coating on their leaves and stems, but purple bluestem is the more robust of the two species.

Purple bluestem is one of the most important components of the wetter range sites in Florida, but is not limited to Florida, as the adjacent map indicates. This bluestem is adapted to heavier soils in the coastal plain areas of Alabama and Georgia and even extends up the east coast into Maryland. Purple bluestem is one of the most palatable native grasses in southern native ranges and with poor grazing management will rapidly disappear. In addition to its feed value for cattle, being a bluestem it is one of the better plants for wildlife,



Green indicates states where purple bluestem is native (http://plants.usda.gov)

particularly as escape cover and nesting material for quail.

Initial evaluation of purple bluestem was conducted at the USDA, NRCS Brooksville Plant Materials Center on an assembly of 91 accessions (ecotypes) collected from throughout the state of Florida. Each accession was evaluated for survival, foliage height, canopy width, basal width, vigor, resistance to drought, diseases, and insects, seed stalk height, seedhead number, seedhead uniformity, and seed maturity date. The ten accessions that ranked highest in the largest number of criteria over all years of testing were planted in an increase block to form a composite (seed from a mixture of plants with desirable genetic attributes). This composite is what has been released as “Ghost Rider”. Because “Ghost Rider” is a mixture of different ecotypes, it should be adapted a wide range of soil types and conditions in the lower South.

For more information on “Ghost Rider” purple bluestem or any of the other native warm-season grasses developed at the USDA, NRCS, Plant Materials Centers in Florida or Georgia, visit the USDA, NRCS, Plant Materials Program website (http://plant-materials.nrcs.usda.gov) or contact M. J. Williams, Florida NRCS Plant Materials Specialist (mj.williams@fl.usda.gov or 352-338-9544).