

From Crop to Weed – Natalgrass in Florida

by Courtney Stokes

Natalgrass (*Melinis repens*, formerly *Rhynchelytrum repens* and, even earlier, *Tricholaena repens* Nees), is a grass native to southern Africa that is becoming more widespread and invasive in Florida. Introduced to the United States as early as 1866 as an ornamental, it was noted to thrive in Florida's moderate, subtropical climate and well-drained, sandy soils. Natalgrass was evaluated as a forage plant in the U.S. Department of Agriculture trial gardens as early as 1878. Additional seed was

for its weedy properties. Since its early evaluation as a forage species there has been little research published on natalgrass. In recent years there has been increased interest in natalgrass as land managers struggle to eliminate the plant from natural areas.

Biology

Natalgrass is an annual to semi-perennial plant with branching culms that root at the nodes. Plants grow from erect clumps to 3 to 4 feet in height and have linear leaves that are 8 to 12 inches in length. The ligule (where the leaf joins the stem) has a rosy pubescent fringe that is a distinguishing characteristic of natalgrass. New leaves are lime to bright green, but turn a reddish or purplish color as they mature. The seed head is a panicle 4 to 8 inches long, pink to purple in color, with reddish hairs that turn silvery gray as the seeds mature. Mature seed dispersal begins approximately two weeks after flowering. Seeds do not germinate well when first shed, but after an after-ripening period, germinate in less than 24 hours when exposed to water. A mature plant typically has multiple seed heads and produces seed year-round. Windborne seeds often collect on the ground in a layer that may be several inches thick. Seeds will germinate at temperatures of 20 degrees C and greater.

Natalgrass will perenniate if it is not exposed to long periods of freezing temperatures. While short periods of freezing temperatures (such as an overnight freeze) cause only temporary damage, extended periods of freezing temperatures will kill the plant. Natalgrass has been reported as far north as Maryland, but it is much more prolific and likely to be perennial in Florida's moderate climate.

Impacts

In the United States, natalgrass can be found throughout Florida and Hawaii, with scattered populations reported in many other southern states. It is a FLEPPC Category I invasive plant (2007). Natalgrass most commonly invades disturbed



Natalgrass infestation in Polk County, Florida

sent to Florida from Brazil, Australia, India and Hawaii in the 1880s and 1890s, presumably for use as a forage grass. It was noted very early that the plants spread from each area of planting (Tracy, 1916). Beginning in 1892, natalgrass was promoted as a forage by the Florida Agricultural Experiment Station (Misleve and Quesenberry, 1999) and, by 1916, the U.S. Department of Agriculture reported over 40,000 acres cultivated for hay in Florida. Lake and Marion counties each had 10,000 acres in 1915, while Sumter and Pasco counties had 3,000 acres each. Hillsborough and DeSoto counties reported over 2,000 acres each, and smaller populations could be found in other counties (Tracy, 1916). However, natalgrass is low-yielding and has poor nutritive value. Agricultural production eventually ceased when better forages were introduced or developed. Today, natalgrass is still occasionally sold as an ornamental, but is most noted

areas and roadsides, though research has shown that it invades undisturbed natural areas and South Florida's pine rocklands (Possley and Maschinski, 2006). Natalgrass infestations have become a major hindrance to the restoration of native species after disturbances such as phosphate mining, commonly colonizing these sites following the eradication of other invasive species. Natalgrass competes with native plants for nutrients, light, water and space, and prevents colonization by native species. In fact, its invasive potential was noted in 1916 when Tracy reported its value as a "smother crop," which "makes such vigorous growth as to choke out most other grasses and weeds." When grown in citrus groves, it outcompeted sandspurs (*Cenchrus* sp.) and produced a hay crop yielding three cuttings of forage of 2-3 tons/acre annually (Tracy, 1916). Small populations of natalgrass are present throughout the state, and can quickly colonize a void left by the control of other species.

Management

The most effective method of controlling natalgrass is preventative. Any nearby seed source should be eliminated before large-scale control of another exotic species. Establishing a good ground cover also appears to help prevent natalgrass spread.

Natalgrass is readily controlled by tillage, and is not a weed in agronomic settings (Tracy, 1916). Control is much more difficult in natural areas, where tillage is often not an option. Fire does not offer long-term control, and may actually provide an advantage by creating disturbed areas that are quickly colonized from seed.

Foliar application of 1-2% glyphosate or a broadcast rate of 2-3 lbs-ai/acre will provide control, as will imazapyr with a 0.5-1% solution or a broadcast rate of 0.25-0.375 lbs-ai/acre. Glyphosate control is a short-term solution, because regrowth from seed is rapid. Research plots sprayed with glyphosate at Tenoroc Fish Management Area initially showed good control, but had more natalgrass after several months than before the treatment. In addition, native species were no longer present in the treated areas. Imazapyr provides residual control, preventing natalgrass reinfestation, but also prevents re-establishment of most native species. If possible, treatments should be applied when flowering and seed set is at a minimum. Preliminary research suggests that imazapic provides good control. Wiregrass (*Aristida stricta*) is reported as tolerant to this herbicide, along with *Andropogon*, *Liatris* and *Eragrostis* species (Kluson *et al*, 2000). Imazapic



Natalgrass seedhead



[above] Natalgrass in Lake County, Florida;



[right] Natalgrass seeds carpet the ground.

should be applied at 0.25-0.5 lbs-ai/acre.

Research is continuing to evaluate natalgrass biology and management options.

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