TEXAS A&M AGRILIFE EXTENSION

ERM-039
10/17

Mexican Feathergrass

M.L. Russell and Barron S. Rector*

Mexican Feathergrass (*Nassella tenuissima* (Trin.) Barkworth) is sold throughout Texas as an ornamental landscape plant. However, this grass is very opportunistic and has been known to escape and become an aggressive weed on disturbed sites. Mexican feathergrass is popular because it is an attractive, fine-leaved, warm-season plant that is hardy and drought-tolerant (Figure 1). It is also commonly referred to as fine-stem needlegrass, Mexican wiregrass, ponytail grass, angel hair grass, angel's hair, and Texas tussock. However, Mexican feathergrass is its most popular trade name.

Identification

Mexican feathergrass has delicate, thread-like leaf blades that wave gracefully in the slightest breeze. Its leaf blades can be 30 to 70 inches long. The leaves are thin and can be rolled smoothly between the thumb and forefinger; however, serrations along the margins feel coarse when sliding fingers down the length of the leaf blade. Mexican feathergrass is a perennial bunchgrass with erect, slender culms approximately 40 inches long. This plant resembles other grasses, for example, the blades of this grass weep over similar to weeping lovegrass (*Eragrostis curvula* (*Schrad.*) *Nees*) and meadow dropseed (*Sporobolus drummondii* (Poir.) Merr. var. *drummondii* (Trin.) Kartesz & Gandhi). This grass has acute ligules that are 0.05 inches wide with tightly compacted rolled leaves and small hairs at the junction (Figure 2). Mexican feathergrass is easy to distinguish from sister grasses like "Texas wintergrass" and "needle and thread" because the leaf blades of these grasses are flat, not tightly rolled like Mexican feathergrass.

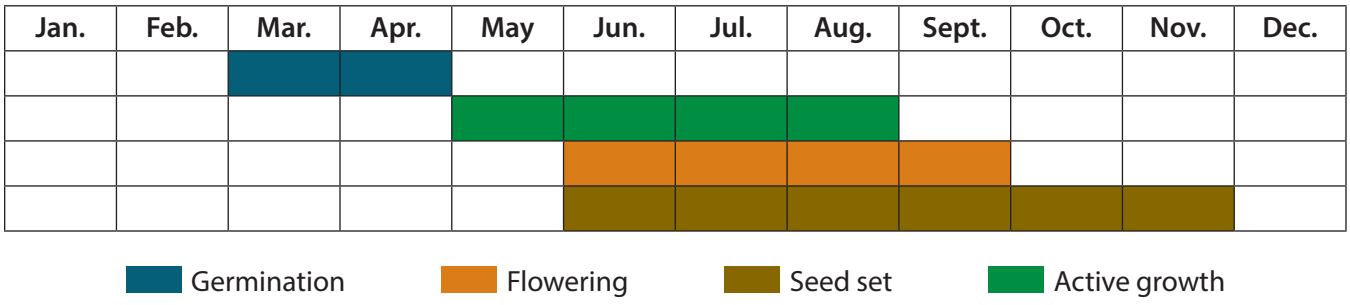

Figure 1. Yearly life cycle of warm-season Mexican feathergrass (*Nassella tenuissima*) in West Central Texas. Mexican feathergrass is challenging to manage due to its acceptance as an ornamental grass, and its aggressive nature when it escapes to disturbed sites.

* Assistant Professor & Extension Range Specialist, and Extension Range Specialist, The Texas A&M University System

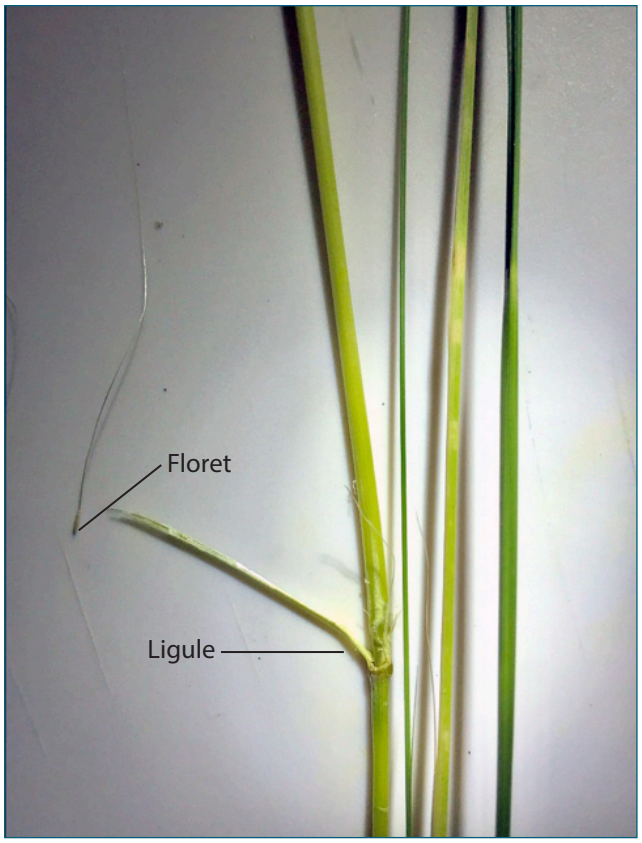

Figure 2. Mexican feathergrass (*Nassella tenuissima*) has acute ligules (1–5 mm long) and rolled leaf blades that are densely compacted near the plant crown. Florets are very sharp with long awns. Mexican feathergrass also is easily determined by the short lemmas, only 2–3 mm long.

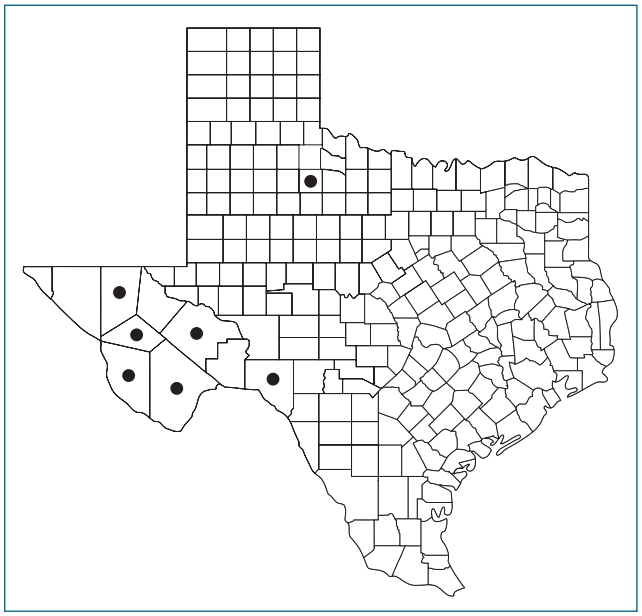

Figure 3. Texas counties that have established stands of Mexican feathergrass on native rangelands (adapted from Shaw, 2012).

Habitat

Mexican feathergrass occurs naturally throughout West Texas and is one of the most common grasses of the Trans Pecos—particularly in Jeff Davis, Brewster, Culberson, Presidio, Pecos, Val Verde, and King counties (Figure 3). This grass commonly grows in dense stands under oaks, junipers, and pines in alluvial basins. It is also abundant on rocky slopes, desert grasslands, and oak-pine woodlands. Again, the most troublesome aspect of Mexican feathergrass is that it is a popular ornamental species that can escape and become an aggressive weed on disturbed sites (Figure 4).

This grass prefers full sunlight or partial shade, and sites with dry to lightly moist soil conditions. It is adapted to well-drained, calcareous, sand, loam, or clay soils. Being well-adapted to extremely dry conditions contributes to the success of Mexican feathergrass establishment in disturbed habitats. It can go dormant during drought—this allows the grass to survive and even thrive following extended dry spells or after drought.

Mexican feathergrass is quick to invade recently disturbed sites, such as oil and gas caliche roads, rights-of-way, oil and gas pump sites, and rangeland with top soils disturbed by mechanical brush control. Due to the strong adaption of Mexican

Figure 4. Mexican feathergrass being sold as an ornamental at a local Texas plant sale.

Figure 5. Ornamental landscaping featuring Mexican feathergrass that has established new individuals from seed (Photo courtesy of Dr. Robert Shaw).

feathergrass to semiarid sites, it can spread rapidly and, from an individual plant, quickly colonize an entire area (Figure 5).

Reproduction

Mexican feathergrass is a prolific seed and bud producer, which contributes to the success of rapid establishment and fast-occupying monocultures. On average, Mexican feathergrass contains 12 to 20 active buds per tiller or culm (Figure 6). Mexican feathergrass contributes all its stored energy reserves to bud production annually and very rarely contains dormant buds (Figure 7). Alarmingly, Mexican feathergrass produces approximately 70,000 seeds per plant in a lifetime, and these are dispersed by wind, water, contaminated soil, automobiles, and animal feces. The seeds can persist in the soil for four years.

Mexican feathergrass is a very robust species and in parts of California, Australia, and New Zealand, where it forms pure, dense stands that prevent native plants from establishing or persisting. Mexican feathergrass is considered an emerging invasive in California that shows high risk due to the plant's extensive seed and bud production and other growing characteristics. It is fire prone and extremely unpalatable for livestock grazing.

Figure 6. Bud banks of active buds on Mexican feathergrass. Each tiller averages 12–20 buds.

Figure 7. Active buds of Mexican feathergrass on a single tiller or culm.

Response to grazing

Mexican feathergrass is a needlegrass and belongs to the *Nasella* family. As with any needlegrass, Mexican feathergrass is well adapted to prevent grazing. Once the seedhead has emerged, Mexican feathergrass becomes very unpalatable. The seedheads can stick into grazing animal's nose, lips, and eyes. With its high fiber content and low nutritional value, it is unpalatable to cattle and may form indigestible balls in the stomach or the omasum of goats, sheep, cattle. This is similar to the way cattle respond to eating mesquite beans. The presence of sharp awns, accumulation of dead material within the plant, and the relatively high silica content of it shoots deter herbivores from utilizing this grass. Furthermore, because Mexican feathergrass grows in semiarid conditions and has unpalatable properties, it is difficult to use any grazing regime to manage this grass. Low palatability and prolific seed production makes this a competitive invasive rangeland grass that can escape ornamental landscapes and avoid grazing pressure.

Management

Prevention: Once established, Mexican feathergrass is very difficult to control—preventing establishment through careful management is strongly recommended. Carefully monitor stock movement from infected areas to new areas or pastures, and do not sell or move hay or machinery from infected properties. If equipment has been in an

infected area, thoroughly clean it before moving to another site to prevent new Mexican feathergrass establishment. It is recommended that this grass not be used as an ornamental near any rangeland or designated agricultural land where there is natural or human-driven soil disturbance.

Physical control: Early detection of this grass is necessary to keep it from spreading further spread and to reduce control or management costs. Hunters should be informed about the presence and importance of this grass so that new locations can be reported to landowners. Physical control of Mexican feathergrass includes hand weeding, digging out, or spot spraying small infestations. Additionally, strategic grazing management is a key technique for preventing establishment on heavily grazed sites. Mowing or shredding typically favors establishment and spread because it does not eliminate this plant. Mowing and haying more likely disperse the seeds.

Chemical control: Mexican feathergrass plants can be killed by applying an individual plant treatment of glyphosate or hexazinone. Research from Australia shows a mortality rate of 76 to 100 percent when individual plants are foliar sprayed with glyphosate at 1.5 percent or soil-applied hexazinone at 2 ml per plant. More than one application may be needed to effectively manage Mexican feathergrass. When using individual plant treatments (IPT) with these chemicals, be aware of the legal amount of chemical that can be used per year per acre on treated sites.

Conclusion

- Mexican feathergrass is currently being sold as an ornamental across numerous outlets in Texas.
- Mexican feathergrass is an opportunistic native, warm-season, drought tolerant, bunchgrass that, when planted away from its natural distribution in far west Texas, can become a pest on Texas rangeland.
- Mexican feathergrass rapidly establishes as an escaped ornamental on disturbed rangeland sites.
- Prevention is key to managing this opportunistic and potentially aggressive plant.
- More research is needed to identify selective management and herbicide strategies for containment on rangeland.
- Additional research is needed to improve overall understanding of the life cycle and growth characteristics of Mexican feathergrass to help prevent invasion of rangeland sites.
- Increased education and awareness about the aggressive nature of this plant this grass is needed because of its widespread sale as an ornamental species for xeriscaping.

Additional resources

Powell, M.A., 2000. Grasses of the Trans-Pecos and Adjacent Areas. Marathon, Texas.

Shaw, R.B., 2012. Guide to Texas Grasses. College Station, Texas.

USDA-NRCS Plants Database: https://plants.usda.gov/core/profile?symbol=NATE3

Plant Right Database: https://plantright.org/invasive/stipanassella-tenuissima/

Invasive Plant Assessment: Department of Agriculture and Fisheries Biosecurity Queensland: https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/land-management/health-pests-weeds-diseases/weeds-diseases/invasive-plants/restricted/mexican-feather-grass

Texas A&M AgriLife Extension Service

AgriLifeExtension.tamu.edu

More Extension publications can be found at *AgriLifeBookstore.org*