

Nepalese browntop - *Microstegium vimineum*

Identification

Nepalese browntop, also called Japanese stiltgrass, is a delicate, sprawling, annual grass that is 0.5 to 3 feet in height (Figure 65). Alternate leaves are short, flat, and lance-shaped and are pale green with off-center veins (Figure 66). Stems are wiry and often multi-branched. Flowers are in delicate spikes that emerge from slender tips. Seeds are prolific and can persist into winter. Dieback begins in early fall, causing the plants to turn brown, giving it the common name, browntop.

Habitat and Distribution

Nepalese browntop is native to Asia and was accidentally introduced into America in Knoxville, Tennessee sometime around 1920. It has been used as packing material for porcelain, possibly explaining its accidental introduction. Most commonly an invader of forested floodplains, Nepalese browntop is also found in ditches, wastelands, forest edges, forested wetlands, fields, shaded roadsides, and trails (Figure 67). Floodplains along major rivers, semi-permanent streams, and wet draws are common places to find this plant. In mountainous regions, it is found below elevations of 4000 feet, and is often associated with areas of natural (e.g., flood scouring) or artificial (e.g., mowing, tilling) disturbance. Partial to deep shade is preferred and it can thrive in very low light conditions. Invaded sites often have moist, sandy or loamy soils with mildly acidic or neutral pH. Nepalese browntop can also invade drier, upland sites, but cannot tolerate periodic standing water.

Nepalese browntop is found throughout the Eastern United States, from Florida to New York. In the South, it is widespread and problematic from Kentucky, Tennessee, Virginia, North Carolina, and northern Georgia.

Impact

Nepalese browntop is capable of invading high-quality, mature floodplain forest and is very difficult to remove once established. It can disperse and invade new areas very quickly. Infestations form thick monocultural stands that alter communities, replacing the native herbaceous vegetation within three to five years after introduction. Alterations in the litter composition, pH levels, and organic soil horizon have been reported after infestations. Nepalese browntop can also negatively effect silvicultural practices by reducing growth in establishing seedlings.

It is dispersed chiefly by flood waters, but can be dispersed by animals and hikers carrying seeds on their fur/clothing. It is a prolific seeder, producing 100-1000 seeds per plant. It is very shade tolerant and can displace vegetation native to floodplains.



Figure 65



Figure 66

Response to Disturbance

Promoted by high light environments
 Promoted by soil disturbance
 Discouraged by fire
 Establishes after fire on bare soil conditions
 Does not sprout well after cutting (annual),
 but can regrow top portions of plant if
 cut early in season

Reproduction

Primary means – seed
 High seed production (>1000 seeds per
 plant)
 Low seed viability (33%)
 Seed bank 3-5 years
 Can self-pollinate even before flowers open
 Small root system

Seed Dispersal

Animal, water, wind (short distances),
 human, and soil contaminate spread

Growth Habits

Grass
 Annual
 Very shade tolerant
 Saturated soil tolerant (doesn't do well with
 extended flooding)
 Drought intolerant
 Prefers moist forested habitats
 C⁴ photosynthetic pathway
 Cold hardy
 High light tolerant (grows best ~35% full
 sunlight)
 Does not establish well with deep litter
 layer

Response to Prescribed Fire

Late season fire may help in control
 Not a fire hazard
 Establishes after fire on bare soil conditions



Figure 67

Control Recommendations

Apply a glyphosate herbicide as a 2-percent solution in water (8 ounces per 3-gallon mix) with a surfactant in summer. Or, apply Vantage (see label) for situations that require more selective control and less impact on associated plants.

Repeat treatments for several years to control abundant germinating seeds. Mowing or pulling just before seed set will prevent seed buildup.
 (See **Herbicide Quick Reference** page 40-42)