Oregon Department of Agriculture  
Plant Pest Risk Assessment for  
Matgrass, *Nardus stricta*  
2010

**Name:** Matgrass, *Nardus stricta* a.k.a. Moor grass, Nard grass, Old man’s beard  
**Family:** Grass, *Poaceae* (alt.*Gramineae*)

**Findings of This Review and Assessment:** Matgrass, *Nardus stricta*, was evaluated and determined to be a category “A” rated noxious weed, as defined by the Oregon Department of Agriculture (ODA) Noxious Weed Policy and Classification System. This determination was based on a literature review and analysis using two ODA evaluation forms. Using the Noxious Qualitative Weed Risk Assessment v.3.8, matgrass scored 60 indicating a Risk Category of "A"; and a score of 15 with the Noxious Weed Rating System v.3.2, indicating a “B” rating. Matgrass is rated as an “A” rated weed due to its impacts on agriculture and its limited distribution in the state.

**Introduction:** Matgrass, *Nardus stricta* is a member of the Poaceae or grass family and is native to Eastern Europe and the Caucasus Mountains and Siberia. Matgrass has spread over large acreages in Scotland, England, Denmark, and Sweden as well as other areas in Western Europe. Matgrass appears in sub-alpine meadows and lowland moors in Europe. The plant is invasive in moist acid soils with low calcium content such as alpine meadows and peat ground. In the Scandinavian countries, England, and Scotland, matgrass has converted much of the native peat bog pastures to near solid stands of *Nardus stricta* (Mitchell 2008). Matgrass has invaded the poorer soils of the hillsides in these European countries as well. The plant is wiry and unpalatable to most livestock and is only grazed by sheep or goats.

*Matgrass in Elmore Nicholson Ranch, 2008, Klamath County, photo by Bob Barrett, ODA*
**Growth Habits, Reproduction, and Spread:** Matgrass is a tussock grass, or perennial bunch type grass. Matgrass thrives in the cooler habitat zones and is well adapted to freezing temperatures in winter and cooler summers. (See Attachment A) It grows up to eight inches and produces colonies three feet and larger in diameter. It is one of the first grasses to start growing in April on the pastures in the Fort Klamath area, starting just a couple of weeks after the snow melts, and later blooms in late May to early June.

The environment in Eastern Oregon is perfectly suited for matgrass expansion and the plant expresses its full biological potential. The leaves of matgrass appear to be narrow or cylindrical because the leaves are folded tightly along the midrib. Flower spikelets form on one side of the tips of the stems. Matgrass pollen is self-compatible allowing single grass clumps to produce seed and expand the population (Kissling et.al.2008). The seeds ripen by mid-June and are released or flung by the plant landing only a few inches from the mother plant, thereby enlarging the colony as they germinate. Seedling plants are only 1/2 inch to 1 inch in diameter making it extremely difficult to find it among other grasses. Each plant will grow up to 3 to 4 inches in diameter and after over-wintering often will have a straw colored tuft of dead leaves in the center (Perkins 1968).

Wet pastures and meadows are matgrass’ preferred habitat (Kissling et.al.2006). Significant acres of seasonally wet grasslands exist especially in Klamath, Harney and Lake counties. These moist native pastures are also the most productive grass producers.

Matgrass is a low-growing non-descript grass, easily overlooked by even skilled botanists. The possibility of a new infestation going undetected for years is high.

**Native Range:** The Caucasus Region of Asia and Siberia. It has become naturalized in most of Eastern Europe and in Western Europe from Scotland, England, to the Scandinavian countries (Clayton et.al. 2006).

**Distribution in North America:** The earliest introduction into North America occurred in the Eastern U.S. states of Massachusetts, Michigan, New Hampshire, Vermont, and New York. Matgrass is also found in Ontario, Canada, Quebec, New Foundland, and Nova Scotia. In the Western U.S. matgrass is only found at one site each in Idaho and Oregon.

Oregon’s only infestation occurs in Klamath County on a native meadow grass pasture at Fort Klamath, probably originating during the late 1960’s or early 1970’s. It has been speculated that the seed was brought to the pasture in the feathers of a goose that had migrated in from Siberia (Barrett per.com.2009). The weedy grass was first noticed around 1975 by the landowner as enlarging colonies among the native grasses. Since that time, the infestation has spread from the original site into four adjacent pastures. The practice of dragging fields in the spring to break up manure piles has helped spread the matgrass over about 200 acres, containing 3 net acres net. (Barrett per com. 2009).
Chemical treatments have been made every year since 1976 and have contained the spread but new clumps are difficult to detect in the early stages and can often produce small amounts of seed. It takes a trained observer to locate small outbreaks that may occur outside the treatment area.

Positive Economic Impact: There are no economic benefits associated with matgrass.

Negative Economic Impact: Matgrass has a coarse or stiff leaf texture, and is unpalatable to most livestock. Livestock, deer, and elk will not graze on matgrass except by accident whereby they tend to spit it out. Matgrass forms colonies, which grow in size each year displacing valuable pasture grasses, making infested pastures less productive and valuable for forage. Forage loss in these most productive pastures would create economic stress in livestock dependent communities. Large infestations of matgrass would also decrease land values should those lands become less valuable as forage producers.

Ecological Impacts: Matgrass colonizes sub-alpine meadows, peat soils, and soils that tend to be wet and acidic. Matgrass will move upslope onto less productive soils also. Matgrass forms colonies that increase in diameter each year displacing all native vegetation within each colony.

Biological Factors Effecting Growth and Establishment: Matgrass is fairly resistant to grazing from both mammals and insects. In Oregon, it grows to its full potential.

Dispersal Factors: The movement of contaminated hay or livestock would play a big role in matgrass dispersal. Seeds attached to animal hooves must be considered a likely risk. Landowners with infested land must be made aware of the potential risk associated with the removal of hay and livestock from infested property.

Control: Matgrass can be controlled using grass herbicides such as glyphosate. Spot treatments of glyphosate on matgrass colonies are very effective in destroying colonies or large individual plants. The most troubling problems with control projects are locating matgrass seedlings amongst other grasses, which is very difficult due to their small size and very fine leaves. Matgrass seedlings that are not treated appear to set seed in eight weeks or less. Digging matgrass plants out of the ground does not appear to be an effective control method due to the disturbance of the soil, which actually encourages seeds to sprout (Barrett pers. com. 2009).
The most effective control program for matgrass appears to be a broadcast chemical treatment of the infested area plus a large area surrounding the infestation for multiple years until the soil seed bank is depleted. If the matgrass infested ground could be placed in an annual cultivation program for several years the soil seed bank could be depleted also.

Oregon’s distribution of matgrass on WeedMapper
References:


Idaho One Plan. 2010. Available at: http://www.oneplan.state.id


USDA Germplasm Resources Information Network (GRIN), Taxon: Nardus stricta L.. Available at: http://www.ars-grin.gov/

USDA Plants Database. 2010.”Plants profile for Nardus stricta, L. (Matgrass) USDA PLANTS.” Available at: http://www.plants.usda.gov/


Attachment A