

Oregon Department of Agriculture
Noxious Weed Pest Risk Assessment for
False brome
Brachypodium sylvaticum
Poaceae
February 2002, Revised January 2015

Findings of Review and Assessment: False brome meets the criteria of a “B” listed noxious weed as defined in the ODA Noxious Weed Policy and Classification System. This determination is based on two independent risk assessments following a literature review. Using a rating system adapted from USDA-APHIS Weed Risk Assessment Guidelines, false brome scored **53** out of a potential score of 89. Using the ODA Noxious Weed Rating system, false brome scored **15**.

Introduction: False brome is an introduced grass species with a high invasive potential in the Pacific Northwest. The earliest record in the OSU herbarium of the species in North America is a 1939 collection from Jasper in Lane County, Oregon. By 1966, the species was well established in at least two large colonies, one in Lane County and the other in the Corvallis-Albany area of Benton County, Oregon (Chambers 1966). From these and other introductions (Cruzen et.al. 2008) infestations have spread to thousands of other locations in Oregon, and the plant is now thoroughly naturalized. This exotic perennial is native to Europe, Asia and North Africa, and is invading habitats in western Oregon, and elsewhere in our region at an alarming rate. The mild cool climate of the Pacific Northwest provides an excellent growing environment for this species. It is capable of aggressively invading both disturbed and undisturbed susceptible forest habitat and forest openings to the exclusion of most other native species and is most successful in the dryer Douglas fir forest zones. Well-established infestations inhibit tree seedling and transplant stock establishment in reforestation causing drought stress and by providing habitat for voles. In some locations it may displace endangered species, such as Kincaid's lupine, *Lupinus sulphureus subsp. kincaidii* [C.P. Smith] L. Phillip, a host plant for the endangered Fender's blue butterfly *Icaricia icariodes fenderi* [Lycaenidae].

False brome has exceptionally broad ecological amplitude, occupying forest floor and open environments at a variety of aspects, elevations and rainfall zones. Populations are known from riparian forests as well as upland hardwood and conifer forests under closed canopy. Vigorous populations also occupy forest edges and upland prairies in full sun. When invading an area, it may first disperse along roadsides, and then move out into undisturbed areas or clear-cuts (Kaye 2001). Currently, it is known only from Oregon, Washington and California and near Lake Cowichan on Vancouver Island BC (Fenneman 2010).



Reproduction: False brome plants appear to be self-fertile producing few to a couple hundred seeds per plant. Isolated plants are observed to produce viable seeds and become new weed epicenters complicating control efforts. Seed movement by wildlife is locally important with both birds and small mammals transporting seeds. Deer and elk also are important vectors of localized spread. Long-distance dispersal is predominantly through logging activities, roadside maintenance equipment and recreational activities within infested areas. Clean equipment practices would go a long ways in reducing new introductions into uninfested locations.

Factors Effecting Establishment: In the Willamette Valley, the species may occur with native perennial grasses such as *Bromus vulgaris* (Hook.) Shear, *Festuca subulata* Trin. and *Melica subulata* (Griseb.) Scrib.in forest understories, and *Elymus glaucus* Buckl. *Bromus carinatus* Hook. & Arn. *Danthonia californica* Boland., and *Festuca californica* Vasey in open areas such as upland prairies and along forest edges. *Brachypodium sylvaticum* does not appear to be rhizomatous, but forms large clumps that tend to coalesce, and it reproduces rapidly from seed.

Probability of Detection: Land managers in the Pacific Northwest should be on the lookout for this plant and be aware of its aggressive potential. Although false brome has some distinguishing characteristics, many small infestations are likely to escape detection for years and become well established. Many botanists and weed professionals on the eastern half of the state are nor familiar with the plant an may overlook it in their work. Some of its distinguishing features are its broad (4-10 mm) leaves, pubescence on at least the lower part of the culms (stems) and leaf margins, and a long-lasting bright lime-green color. It differs from native perennial *Bromus* species in having sheaths open to the base, having no red coloration on the lower stem (common on Columbia brome) and spikelets directly attached to the flower stem (no 0.5 inch pedicels as on Columbia brome). In contrast, our perennial bromes have sheaths closed >1/4 of their length and their spikelets are generally strongly pedunculate (Kaye 2001).

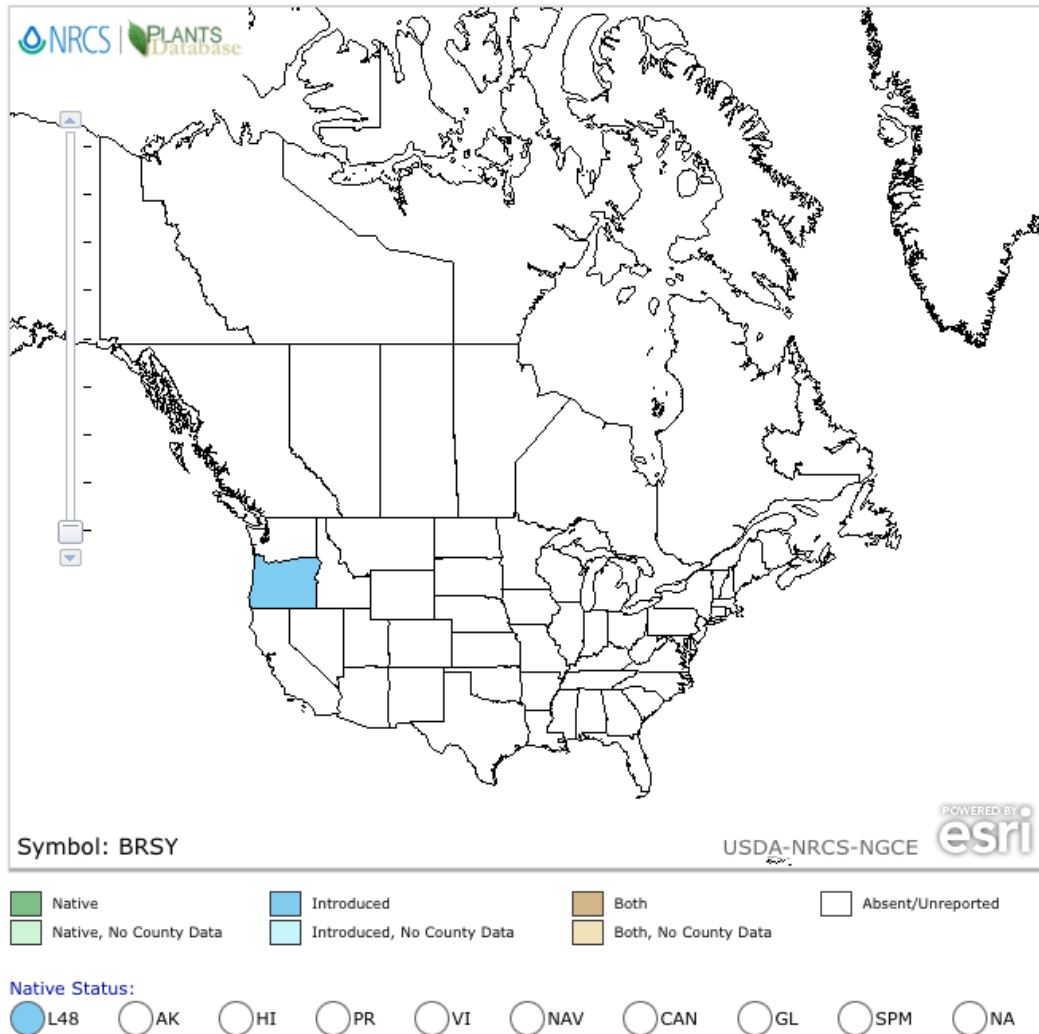
Distribution in Oregon: Oregon is the epicenter for false brome in the U.S. with smaller outbreaks in California and Washington. The occurrence of two small infestations on the eastern slopes of the Cascades suggests that false brome can survive in the drier colder portions of Oregon. The Klamath, Ochoco, Blue Mountains and Siskiyou mountains may all be susceptible to invasion.

Environmental Impacts: Frequently false brome forms mono-typic stands under forest canopies. The heavy grass cover can reduce the density and occurrence of native forbs. Foraging deer and elk do not feed on the species to any significant amount. Heavy infestations can seriously reduce deer carrying capacity on forestlands. As infestations increase, native plat diversity can be expected to suffer.

Economic Impacts: The greatest attention to false brome has been primarily from naturalists and native plant enthusiasts because of the ecological impacts brought on by brome invasion. The economic impact has received less attention and has been limited to private timberlands. Many acres of private timberland receive initial herbicide treatments to remove grass and other vegetation regardless if they are brome infested or not, therefore, no additional costs are attributed to false brome. The same cannot be said of public lands and it is on these where the greatest potential for economic harm exists. A secondary economic concern may involve false brome toxicity to livestock. The endophyte fungus, *Epichloe sylvatica* has been identified in North American false brome populations. Existence of endophyte fungi in forage grasses has been linked to negative health effects in sheep and other livestock. Currently, no false brome pastures have been identified in Oregon but the threat may increase in the future.

Control: Control of false brome is not difficult and the plant succumbs to a variety of treatment methods. Small infestations may be manually removed or smothered. Larger infestations respond well to summer or fall glyphosate treatments. Other products may be included for residual control. Persistence is required to exhaust soil seed banks. Most seeds are eliminated from the soil profile in 3-4 years. (Clark et.al. 2004)

US distribution of false brome



Noxious Weed Qualitative Risk Assessment 3.8
Oregon Department of Agriculture

Common Name: False brome
Scientific Name: *Brachypodia sylvaticum*
Family: Poaceae

For use with plant species that occur or may occur in Oregon to determine their potential to become serious noxious weeds. For each of the following categories, select the number that best applies. Numerical values are weighted to increase priority categories over less important ones. Choose the best number that applies, intermediate scores can be used.

Total Score: **53** Risk Category: **B**

GEOGRAPHICAL INFORMATION

- 1) **6** **Invasive in Other Areas**
- 0 Low- not known to be invasive elsewhere.
 - 2 Known to be invasive in climates dissimilar to Oregon's current climates.
 - 6 Known to be invasive in geographically similar areas.
- Comments: Invasive in Northern California, Washington and British Columbia
- 2) **6** **Habitat Availability:** Are there susceptible habitats for this species and how common or widespread are they in Oregon?
- 1 *Low* – Habitat is very limited, usually restricted to a small watershed or part of a watershed (e.g., tree fern in southern Curry County).
 - 3 *Medium* – Habitat encompasses 1/4 or less of Oregon (e.g., oak woodlands, coastal dunes, eastern Oregon wetlands, Columbia Gorge).
 - 6 *High* – Habitat covers large regions or multiple counties, or is limited to a few locations of high economic or ecological value (e.g., threatened and endangered species habitat).

Comments: Habitat encompasses majority of Western Oregon

- 3) **0** **Proximity to Oregon:** What is the current distribution of the species?
- 0 *Present* – Occurs within Oregon.
 - 1 *Distant* – Occurs only in distant US regions or foreign countries.
 - 3 *Regional* – Occurs in Western regions of US but not adjacent to Oregon border.
 - 6 *Adjacent* – Weedy populations occur adjacent (<50 miles) to Oregon border.

Comments: Occurs in Oregon

- 4) **5** **Current Distribution:** What is the current distribution of escaped populations in Oregon?
- 0 *Not present* – Not known to occur in Oregon.
 - 1 *Widespread* – Throughout much of Oregon (e.g., cheatgrass).
 - 5 *Regional* – Abundant (i.e., occurs in eastern, western, central, coastal, areas of Oregon) (e.g., gorse, tansy ragwort).
 - 10 *Limited* – Limited to one or a few infestations in state (e.g., kudzu).

Comments: Abundant in the foothills of the southern Willamette Valley and in SW Oregon in limited locations.

BIOLOGICAL INFORMATION

- 5) **2** **Environmental Factors:** Do abiotic (non-living) factors in the environment effect establishment and spread of the species? (e.g., precipitation, drought, temperature, nutrient availability, soil type, slope, aspect, soil moisture, standing or moving water).
- 1 *Low* – Severely confined by abiotic factors.
 - 2 *Medium* – Moderately confined by environmental factors
 - 4 *High* – Highly adapted to a variety of environmental conditions (e.g., tansy ragwort, Scotch broom).

Comments: Primarily adapted to milder western Oregon climates.

- 6) **3** **Reproductive Traits:** How does this species reproduce? Traits that may allow rapid population increase both on and off site.
- 0 *Negligible* – Not self-fertile, or is dioecious and opposite sex not present.
 - 1 *Low* – Reproduction is only by seed, produces few seeds, or seed viability and longevity are low.
 - 3 *Medium* – Reproduction is vegetative (e.g., by root fragments, rhizomes, bulbs, stolons).
 - 3 *Medium* – Produces many seeds, and/or seeds of short longevity (< 5 years).
 - 5 *High* – Produces many seeds and/or seeds of moderate longevity (5-10 years) (e.g., tansy ragwort).
 - 6 *Very high* – Has two or more reproductive traits (e.g., seeds are long-lived >10 years and spreads by rhizomes).

Comments: Many seeds, moderate lifespan.

- 7) **4** **Biological Factors:** Do biotic (living) factors restrict or aid establishment and spread of the species? (What is the interaction of plant competition, natural enemies, native herbivores, pollinators, and pathogens with species?)
- 0 *Negligible* – Host plant not present for parasitic species.
 - 1 *Low* – Biotic factors highly suppress reproduction or heavily damage plant for an extended period (e.g., biocontrol agent on tansy ragwort).
 - 2 *Medium* – Biotic factors partially restrict or moderately impact growth and reproduction, impacts sporadic or short-lived.
 - 4 *High* – Few biotic interactions restrict growth and reproduction. Species expresses full growth and reproductive potential.

Comments: Species expresses full growth and reproductive potential.

- 8) **3** **Reproductive Potential and Spread After Establishment - Non-human Factors:** How well can the species spread by natural means?
- 0 *Negligible* – No potential for natural spread in Oregon (e.g., ornamental plants outside of climate zone).
 - 1 *Low* – Low potential for local spread within a year, has moderate reproductive potential or some mobility of propagules (e.g., propagules transported locally by animals, water movement in lakes or ponds, not wind blown).
 - 3 *Medium* - Moderate potential for natural spread with either high reproductive potential or highly mobile propagules (e.g., propagules spread by moving water, or dispersed over longer distances by animals) (e.g., perennial pepperweed).
 - 5 *High* – Potential for rapid natural spread throughout the susceptible range, high reproductive capacity and highly mobile propagules. Seeds are wind dispersed over large areas (e.g., rush skeletonweed).

Comments: Moves by water or animals.

- 9) **4** **Potential of Species to be Spread by Humans.** What human activities contribute to spread of species? Examples include: interstate or international commerce; contaminated commodities; packing materials or products; vehicles, boats, or equipment movement; logging or farming; road maintenance; intentional introductions of ornamental and horticultural species, or biofuel production.
- 1 *Low* – Potential for introduction or movement minimal (e.g., species not traded or sold, or species not found in agricultural commodities, gravel or other commercial products).
 - 3 *Medium* – Potential for introduction or off-site movement moderate (e.g., not widely propagated, not highly popular, with limited market potential; may be a localized contaminant of gravel, landscape products, or other commercial products) (e.g., lesser celandine, Canada thistle).
 - 5 *High* – Potential to be introduced or moved within state high (e.g., species widely propagated and sold; propagules common contaminant of agricultural commodities or commercial products; high potential for movement by contaminated vehicles and equipment, or by recreational activities) (e.g., butterfly bush, spotted knapweed, Eurasian watermilfoil).

Comments: Commonly moved by heavy machinery in road construction or logging operations, though movement is mostly localized

IMPACT INFORMATION

- 10) **6** **Economic Impact:** What impact does/can the species have on Oregon's agriculture and economy?
- 0 *Negligible* – Causes few, if any, economic impacts.
 - 1 *Low* - Potential to, or causes low economic impact to agriculture; may impact urban areas (e.g., puncture vine, pokeweed).
 - 5 *Medium* – Potential to, or causes moderate impacts to urban areas, right-of-way maintenance, property values, recreational activities, reduces rangeland productivity (e.g., English ivy, Himalayan blackberry, cheatgrass).
 - 10 *High* – Potential to, or causes high impacts in agricultural, livestock, fisheries, or timber production by reducing yield, commodity value, or increasing production costs (e.g., gorse, rush skeleton weed, leafy spurge).

Comments: Can cause reductions in survival and vigor of transplants in forest regeneration.

- 11) **4** **Environmental Impact:** What risks or harm to the environment does this species pose? Plant may cause negative impacts on ecosystem function, structure, and biodiversity of plant or fish and wildlife habitat; may put desired species at risk.
- 0 *Negligible* – None of the above impacts probable.
 - 1 *Low* – Can or does cause few or minor environmental impacts, or impacts occur in degraded or highly disturbed habitats.
 - 4 *Medium* – Species can or does cause moderate impacts in less critical habitats (e.g., urban areas, sagebrush/ juniper stands).
 - 6 *High* – Species can or does cause significant impacts in several of the above categories. Plant causes severe impacts to limited or priority habitats (e.g., aquatic, riparian zones, salt marsh; or T&E species sites).

Comments: Species causes alteration of forest understory communities in second growth forests.

- 12) 0 **Impact on Health:** What is the impact of this species on human, animal, and livestock health? (e.g., poisonous if ingested, contact dermatitis, acute and chronic toxicity to livestock, toxic sap, injurious spines or prickles, causes allergy symptoms).
- 0 *Negligible* – Has no impact on human or animal health.
 - 2 *Low* – May cause minor health problems of short duration, minor allergy symptoms (e.g., leafy spurge).
 - 4 *Medium* – May cause severe allergy problems, death or severe health problems through chronic toxicity, spines or toxic sap may cause significant injury. (e.g., giant hogweed, tansy ragwort).
 - 6 *High* – Causes death from ingestion of small amounts, acute toxicity (e.g. poison hemlock).

Comments: No impact.

CONTROL INFORMATION

- 13) 8 **Probability of Detection at Point of Introduction:** How likely is detection of species after introduction and naturalization in Oregon?
- 1 *Low* – Grows where probability of early detection is high, showy and easily recognized by public; access to habitat not restricted (e.g., giant hogweed).
 - 5 *Medium* – Easily identified by weed professionals, ranchers, botanists; some survey and detection infrastructure in place. General public may not recognize or report species (e.g., leafy spurge).
 - 10 *High* – Probability of initial detection by weed professionals low. Plant shape and form obscure, not showy for much of growing season, introduction probable at remote locations with limited access (e.g., weedy grasses, hawkweeds, skeletonweed).

Comments: Plant is not showy and can infest forest environments for years before detection.

- 14) 2 **Control Efficacy:** What level of control of this species can be expected with proper timing, herbicides, equipment, and biological control agents?
- 1 *Negligible* – Easily controlled by common non-chemical control measures (e.g., mowing, tillage, pulling, and cutting; biocontrol is very effective at reducing seed production and plant density) (e.g., tansy ragwort).
 - 2 *Low* – Somewhat difficult to control, generally requires herbicide treatment (e.g., mechanical control measures effective at preventing flowering and but not reducing plant density; herbicide applications provide a high rate of control in a single application; biocontrol provides partial control).
 - 4 *Medium* – Treatment options marginally effective or costly. Tillage and mowing increase plant density (e.g., causes tillering, rapid regrowth, spread from root fragments). Chemical control is marginally effective. Crop damage occurs or significant non-target impacts result from maximum control rates. Biocontrol agents ineffective.
 - 6 *High* – No effective treatments known or control costs very expensive. Species may occur in large water bodies or river systems where containment and complete control are not achievable. Political or legal issues may prevent effective control.

Comments: Plant populations can be controlled by herbicides, mulching and manual practices.

Category Scores:

17 Geographic score (Add scores 1-4)

16 Biological Score (Add lines 5-9)

10 Impact Score (Add lines 10-12)

10 Control Score (Add Lines 13-14)

53 Total Score (Add scores 1-14 and list on front of form)

Risk Category: 55-89 = A 24-54 = B < 24 = unlisted.

This Risk Assessment was modified by ODA from the USDA-APHIS Risk Assessment for the introduction of new plant species.

V3.8 2/19/2016

Oregon Department of Agriculture
Noxious Weed Rating System

Common Name: False brome

Scientific Name: *Brachypodium sylvaticum*

Point Total: **15**

Rating: **B**

1) Detrimental Effects: Check all that apply, add number of checks

- 1. *Health*: causes poisoning or injury to humans or animals
- 2. *Competition*: strongly competitive with crops, forage, or native flora
- 3. *Host*: host of pathogens and/or pests of crops or forage
- 4. *Contamination*: causes economic loss as a contaminate in seeds and/or feeds
- 5. *Interference*: interferes with recreation, transportation, harvest, land value, or wildlife and livestock movement

2) Reproduction & Capacity for Spread: Check the number that best describes, enter that number

- 1. Few seeds, not wind blown, spreads slowly
- 2. Many seeds, slow spread
- 3. Many seeds, spreads quickly by vehicles or animals
- 4. Windblown seed, or spreading rhizomes, or water borne
- 5. Many wind-blown seeds, high seed longevity, spreading rhizomes, perennials

3) Difficulty to Control: Check the number that best describes, enter that number

- 1. Easily controlled with tillage or by competitive plants
- 2. Requires moderate control, tillage, competition or herbicides
- 3. Herbicides generally required, or intensive management practices
- 4. Intensive management generally gives marginal control
- 5. No management works well, spreading out of control

4) Distribution: Check the number that best describes, enter that number

- 1. Widely distributed throughout the state in susceptible habitat
- 2. Regionally abundant, 5 or more counties, more than 1/2 of a county
- 3. Abundant throughout 1- 4 counties, or 1/4 of a county, or several watersheds
- 4. Contained in only 1 watershed, or less than 5 square miles gross infestation
- 5. Isolated infestation less than 640 acres, more than 10 acres

5) Ecological Impact: Check the number that best describes, enter that number

- 1. Occurs in most disturbed habitats with little competition
- 2. Occurs in disturbed habitats with competition
- 3. Invades undisturbed habitats and crowds out native species
- 4. Invades restricted habitats (i.e. riparian) and crowds out native species

15

TOTAL POINTS

Note: Noxious weeds are non-native plants with scores of 11 points or higher. Any plants in 4.1, 4.2, and 4.3 should not be classified as “A” rated weeds. Ratings: 16 + = A, 15 – 11 = B

ODA Weed Rating System 2/22/16 V3.8

References:

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Reported by: Glenn Miller, ODA

US Plant Hardiness Zone, <http://planthardiness.ars.usda.gov/PHZMWeb/>

