INTEGRATED PEST MANAGEMENT PRESCRIPTION

Western bracken fern *(Pteridium aquilinum)*

Description:

Bracken fern is a native, deciduous, perennial that grows from 1½ to 6½ feet tall. Each leaf arises directly from a rhizome (horizontal underground stem), and is supported on a rigid leaf stalk.

Bracken fern does not produce flowers or seeds, but reproduces by spores and creeping rhizomes. The ½ inch thick rhizomes are black with scales and can grow 20 feet long and 10 feet deep. The curled leaves (often called fiddleheads) emerge from the rhizomes in spring and are covered with silvery gray hair. The leaf is broad (3 feet long, 3 feet wide), triangular, dark green and is divided into many smaller triangular leaflets.

A continuous line of spore cases (spore-producing structures) are formed along the underside of the leaflets. Each case produces minute brown spores from August through September and a single leaf can produce 300,000,000 spores annually.

Bracken fern is one of the earliest ferns to appear in spring or after a fire. In the fall, it is one of the first plants to be killed by frost, resulting in large patches of crisp, brown foliage.

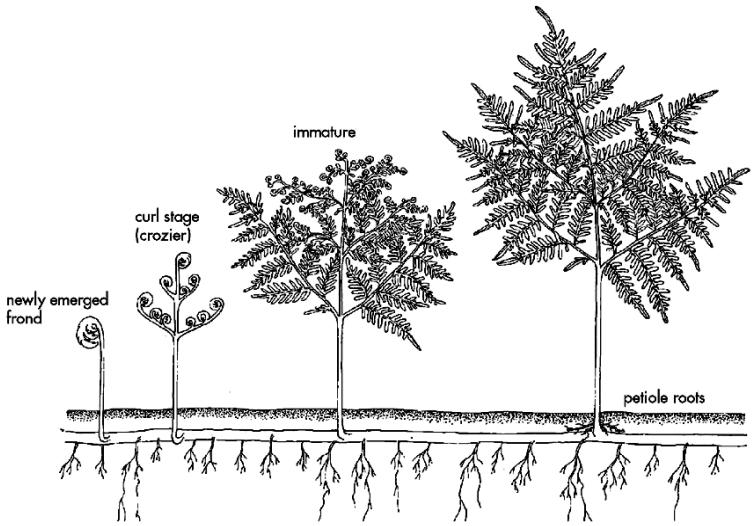
Impacts:

All parts of bracken fern, including rootstocks, fresh or dry leaves, fiddleheads, and spores, contain toxic compounds that are poisonous to livestock and humans. Poisoning often occurs in spring when young shoots sprout and during late summer when other feed is scarce. Livestock may also be poisoned when animals are fed hay containing bracken fern.

Bracken contains a thiaminase, which leads to a deficiency of thiamine (vitamin B1) in horses. Symptoms usually develop slowly and if the animals are not diagnosed and treated, they could die. Other livestock are less susceptible to the effects of the thiaminase, but other bracken fern toxins affect them. The poisoning occurs in cattle after they have consumed considerable amounts of bracken fern for 2 to 4 weeks. Poisoned cattle and sheep initially appear normal; and then clinical signs and often death occur suddenly. Long-term exposure to bracken fern has also been determined to cause cancer in both animals and humans. Tumors of the jaws, rumen, intestine, and liver are found in sheep feeding on bracken fern.

BE AWARE! Livestock should be excluded from heavily infested areas. Seek veterinarian advice for any animal known or suspected of eating bracken fern. Veterinarian treatment with thiamine injections can reverse the effects of bracken fern toxicity, especially in horses. Exposure to bracken fern by humans should also be limited and use of dust masks can help reduce exposure to spores in infested fields.

Besides possessing compounds that deter their consumption by animals, bracken fern is also a highly successful competitor against other plant life. By turning its leaf surface horizontally, it effectively shades out lower growing species, and in winter, can smother adjacent plants, including young trees, as dead fronds collapse. Bracken fern also produces compounds in decaying litter that suppress the growth of other species.



Stages of development of bracken fern

Control Options:

Thurston County's Integrated Pest Management emphasizes cultural, biological, and manual control methods to keep pests and vegetation problems low enough to prevent damage. The goal of Thurston County is to minimize the use of pesticides by utilizing and providing information about the most effective control options that are available and practical.

► Biological

There are currently no biological control methods available for Western bracken fern.

► Cultural / Habitat

The best way to prevent bracken fern from getting established is to have densely vegetated land. These ferns are very opportunistic and maintaining a good ground cover of desirable vegetation does help keep the spores from germinating.
areas.

► Manual / Mechanical

Pulling or mowing bracken fern in mid-summer can lower vigor by depleting energy reserves. Cutting in early summer, allowing the rhizomes to regenerate a second crop of fronds, then re-cutting will deplete the resources of the rhizome much faster than a single cutting. Mowing will also reduce spore production, helping to prevent spread, and allow more light to reach the grass.

► Chemical

In most landscaping and urban areas, bracken fern is best controlled by repeated pulling or mowing. However, large pastures or hay fields may require treatment with an herbicide or a combination of mowing and herbicides. Glyphosate products (such as Roundup Pro, etc.) are systemic herbicides that get absorbed into the plant tissue and are circulated to kill all parts of the plant. When used according to label directions, glyphosate can be effective in controlling bracken fern because it kills the rhizomes which limits its ability to reproduce. Glyphosate products are non-selective and will damage or kill any vegetation it is sprayed or wiped on.

Thurston County rates glyphosate products high in hazard for carcinogenic potential. The risk from spot spraying bracken fern is considered low provided the applicator wears a long sleeved shirt, pants and chemically resistant gloves.

Herbicides containing the active ingredient dicamba (Banvel®, Vision®, etc.) are also effective in the control of bracken fern. Dicamba is a systemic herbicide that will kill the entire plant, but it is also a selective herbicide so it can be used around grasses with little or no damage. Thurston County considers dicamba "moderate in hazard" due to its potential for mobility and persistence. Products containing dicamba are best suited for large areas and are not available for use in residential settings, check the product label to ensure that the area you want to use it is listed.

Timing:

The Pacific Northwest Weed Management Handbook recommends treating with dicamba in late winter, before fronds emerge. A follow-up application can be made in early summer, when the fronds are fully expanded and starch reserves in the rhizome are at their lowest level.

Pollinator Protection: To minimize negative impacts to bees and other pollinators, treatment prior to blooming is recommended. Removal of flowers before treating can be an option. If treatment must occur during blooming period, try to spray early or late in the day or on cloudy cool days.

READ AND FOLLOW ALL LABEL DIRECTIONS AND RESTRICTIONS. Obey all label precautions and safety measures. Always use personal protective equipment that includes coveralls, waterproof gloves, shoes plus socks, and protective eyewear. Use of brand names does not connote endorsement and is for reference only; other formulations of the same herbicides may be available under other names. Information provided is current as of the date of the prescription. Pesticide product registration is renewed annually and product names and formulations may vary from year to year.

REFERENCES:

PNW 443 Western Bracken fern, J.P. Fitzsimmons & L.C. Burrill http://extension.oregonstate.edu/catalog/html/pnw/pnw443/

New South Wales, Department of Primary Industries 2005 Agdex 646

USDA Agricultural Research Service, Poisonous Plant Research Products and Services, Western Bracken Fern (Pteridium aquilinum). 2/7/2006.

Utah State University Extension Bulletin, Western Bracken Fern, http://extension.usu.edu/rangeplants/htm/western-brackenfern

The 2007 PNW Weed Management Handbook, Oregon State University, ISBN 978-1-931979-13-9

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