

**WRITTEN FINDINGS OF THE
WASHINGTON STATE NOXIOUS WEED CONTROL BOARD**
(Updated December 2000)

Scientific Name: *Centaurea stoebe* L
 SY = C. biebersteinii
 SY = C. maculosa

Common Name: Spotted knapweed

Family: Asteraceae

Legal Status: Class B: (a) regions 1, 2, 3, 5, 6, 8, 9
 (b) Ferry County of Region 4
 (c) Adams and Whitman Counties of Region 7
 (d) Region 10 except Garfield County.

Description and Variation: Spotted knapweed is an 8 to 48 inch tall perennial with a stout tap root. The plant is hairy and rough, with a somewhat woolly appearance. The leaves, which are once or twice divided into lobes on each side of the center vein, are blue-gray in color. Overwintering rosettes bolt in early summer, producing 1-15 stems. The stem leaves, which have a few lobes or are linear, become smaller toward the top of the plant. The pink to purple flowers (rarely white) occur in egg-shaped to oblong heads, which are solitary at the ends of clustered branches. The bracts of the flower heads have obvious veins, with a black spot on the tip. The lower and middle bracts are egg-shaped, and green to brown below the tip. The tip and upper bract margin have a soft spine-like fringe, with the center spine being shorter than the others. White-flowered plants usually lack the dark spot on the bract tip. The plant flowers from June to October, producing black to brown, oval seeds with pale lengthwise lines, and a ring of slender, chaffy bristles.

Economic Importance: Spotted knapweed is a very aggressive species that can infest large areas quickly. The species has limited value as forage for cattle and seasonal value for sheep or big game. Knapweed infestations increase production costs for ranchers, impair the quality of wildlife habitat, decrease plant diversity, increase soil erosion rates on valuable watershed areas, decrease the visual quality and appeal of recreational lands, and pose wildfire hazards.

Geographical Distribution: Spotted knapweed is native to central Europe. In the western U.S. it appears best adapted to well-drained Montana rangelands. Spotted knapweed is found throughout Washington, Idaho, Montana and Wyoming and is also known from Canada. In Washington spotted knapweed is found throughout the state. In central Washington, spotted knapweed often occurs in association with irrigation.

Habitat: In its native Europe spotted knapweed occurs in dry meadows, pastureland, debris, rubble, earthen banks, stony hills or upland rocky areas, along roadsides, and on the sandy or gravelly floodplains of streams and rivers. Soil conditions include light, porous, fertile, well-drained, and often calcareous soils in warm localities. In France, spotted knapweed may be found up to 3000 feet in the Cevennes and to 3300 feet in the Cantal. In northeastern Washington, the species occurs on glacial till and outwash soils, where it has been found up to 6500 feet. The species also occurs along roads and railroads, including cut and fill slopes, in gravel pits, at airports, in vacant lots, hayfields, pastures, and forest clearings. In central Washington, spotted knapweed often occurs in association with irrigation. The species generally grows in areas of higher available moisture, such as deep soils with threepart sagebrush/fescue or roadsides receiving precipitation runoff.

History: Current theories suggest that spotted knapweed was introduced to this country either with alfalfa seed from Asia Minor-Turkmenistan or with hybrid alfalfa seed from Germany. Some sources indicate its presence in the Pacific Northwest (Vancouver Island) as early as 1893. However, it was not observed in Washington until 1923, when it was collected in the San Juan Islands. By the 1930's, records indicate that spotted knapweed was becoming common in Montana and northern Idaho. During this period, it was also spreading in Okanogan and Whatcom counties in Washington.

Growth and Development: Spotted knapweed is a short-lived perennial lasting about 9 years.

Site conditions and precipitation affect seed production, with wet years producing more seeds. The highest germination rates are in the spring and in the fall.

Reproduction: Spotted knapweed reproduces by seed. Seeds germinate over a wide range of conditions, with optimum seedling emergence of seeds at the soil surface. Seeds buried 2 inches or more in soil had little seedling emergence. There is a 55% seedling mortality under dry conditions. Each plant produces one to many (15) stems. Flowering buds form in early June, and each flower head produces 25-35 flowers. Flowers are produced yearly, and they occur from June to October. Seeds mature by mid-August, and most seeds are shed two to three weeks later when dehydrated bracts open the flowerheads; some seeds may overwinter in the seedheads. Seedheads remain on the plant. Most seeds fall within a 3 or 4-foot radius of the parent plant. Longer distance dispersal is by rodents or livestock, in hay or commercial seed, or on vehicles. Seeds

Response to Herbicides: Refer to the annually updated PNW Weed Control Handbook for current control information (William et al. 2000).

Response to Cultural Methods: Grazing, mowing, and tillage: seasonal.

Biocontrol Potential: Presently, there are ten biocontrol agents that have been released on spotted knapweed in Washington. *Agapeta zoegana* (root-boring moth), *Bangasternus fausti* (seed head weevil), *Chaetorellia acrolophi* (seed head fly), *Cyphocleonus achates* (root-boring/gall weevil), *Larinus obtusus* (seed head weevil), *Terellia virens* (seed head fly) are not presently collectable, and their effectiveness is unknown. *Larinus minutus* (seed head weevil) is available in limited quantities for redistribution. *Metzeria paucipunctella* (seed head moth), *Urophora affinis* (seed head gall fly), and *Urophora quadrifasciata* (seed head gall fly) are available for mass collections.

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**References available from the Washington State Noxious Weed Control Board office in Kent.*