

**WRITTEN FINDINGS OF THE  
WASHINGTON STATE NOXIOUS WEED CONTROL BOARD  
(October 31, 2005)**

Scientific Name:        ***Lamiastrum galeobdolon* (L.) Ehrend. & Polatschek**

Synonyms:            *Lamium galeobdolon* (L.) L.  
                              *Galeobdolon luteum* Huds.

Common Name:        yellow archangel, golden dead-nettle, weasel-snout

Family:                        Lamiaceae

Legal Status:            Class C Noxious Weed in 2007

Description and Variation:

As with many plants grown for agricultural or horticultural purposes, there are several subspecies and cultivars of *Lamiastrum galeobdolon*, including the diploid subspecies *galeobdolon* and *flavidum* and the tetraploid subspecies *argentatum* and *montanum*. While it is the cultivar 'variegatum' within subspecies *montanum* that is invading the Lower Mainland of British Columbia (Graham, 2003), it appears to be the cultivar 'Florentinum' (also known as 'Variegatum') of the subspecies *argentatum* that is spreading throughout the Seattle area (Jacobson, 2003). Because most *L. galeobdolon* subspecies share many invasive characteristics (Graham, 2003), the species *Lamiastrum galeobdolon*, inclusive of its subspecies and cultivars, has been proposed as a Noxious Weed.

*L. galeobdolon* is a perennial, fast-growing, viny, evergreen herbaceous plant that grows prostrate to the ground, forming a dense ground cover and also climbing up and over low-growing vegetation and small structures such as tree stumps. Leaves are oppositely arranged on a purplish, square-shaped, hairy stem. In bright sun, the plant will grow more erect.

While sun-exposed leaves are typically thicker, brighter and larger than shade leaves, the typical leaf is between 2.5 to 8 cm in length and up to 5 cm in width, with a petiole that up to 3 cm long. Leaves are serrated and ovate shaped, with rounded or cordate bases. Leaf undersides are often lighter green or sometimes purple due to anthocyanins and are stomatous. Leaf upper sides often have silver or white pattern, and have a texture that has been described as "wrinkly" (Jacobson, 2003). Roots typically reach 30 cm in length and can occur 20 cm deep in the substrate.

Bright yellow flowers are 17-25mm, tubular-campellate (long, bell-shape), with an upper and lower lip. The upper lip is dorsally compressed and helmet shaped, consisting of two lobes fused together. The lower lip is actually three lobes fused together. Each flower has two median carpels that are divided by a structure into four, 3mm nutlets, each of which contains one seed. The flowers are produced as pairs of dense clusters internodally (between pairs of leaves) on flowering stems between April and June in the Seattle area (Jacobson, 2003). The plant contains ethereal oils in its leaves, giving it a distinctive non-menthol odor described as "unpleasant and yet not revolting" (Jacobson, 2003), as well as the common name weasel-snout (Packham, 1983).

### Economic Importance:

*Detrimental:* The dense mats can spread over other plants (Plants for a Future, 2004 and references therein) including *Polystichum munitum* (sword fern), *Trillium*, and *Maianthemum dilatatum* (false lily-of-the-valley) in woodlands of the Pacific Northwest (Graham, 2003).

*Beneficial:* Because *L. galeobdolon* can tolerate a wide range of soil, water, and shade conditions, has attractive foliage, and spreads rapidly, it is a popular choice for ground coverage, especially in shady areas (Jacobson, 2003). This plant is also used in hanging baskets and flowerbeds because of its silvery foliage.

Habitat: Information about habitat comes from Packham (1983) unless otherwise noted. Typically restricted to woodlands, stream banks, and hedgerows, *Lamiastrum galeobdolon* grows on a variety of substrates including “limestones, clays, sandstones, conglomerates, recent alluvia...and deep loamy soils rich in nutrients” and can tolerate a pH range between moderately acidic (>4.3) and alkaline (<8.0). The woodland plant can also tolerate waterlogged, damp, and dry soil, although it cannot persist in permanently flooded areas. Though commonly regarded as a shade tolerant plant, *L. galeobdolon* thrives in wooded areas that are only lightly shaded; however it also grows under well shaded conditions. While the plant is frost tolerant, it does not always recover well from drought conditions.

Geographic Distribution: *Lamiastrum galeobdolon* is native to temperate regions of Asia (Iran, Turkey, Azerbaijan, Georgia) and in Europe (Albania, Austria, Denmark, Finland, Sweden, England, Czechoslovakia, Germany, Hungary, Netherlands, Poland, Switzerland, Belarus, Estonia, Latvia, Lithuania, Russian Federation (European section), Ukraine, Bulgaria, Greece, Italy, Romania, Yugoslavia, France and Spain. (USDA, ARS, GRIN, 2005)

History: *Lamiastrum galeobdolon* has naturalized in New Zealand and Australia (USDA, ARS, GRIN, 2005). In the United States it has been documented in Massachusetts, New York, and Virginia (USDA, NRCS 2005). In Washington State, the plant has been establishing in King, Kitsap, San Juan, and Thurston Counties, primarily in urban forests, wooded roadsides, shaded creek beds, and reportedly in the Mt. Baker Snoqualmie National Forest. The recorded 19 escaped populations in King County, four populations in Kitsap County, and three populations in San Juan County cover at least an estimated 60,000 sq feet combined.

Growth and Development: Information about growth and development is based upon European populations and comes from Packham (1983) unless otherwise noted. Seedlings develop into small plants that form stolons that can exceed one meter by the first year. Typically the plants are unable to support their weight and fall over, whereby internodal roots develop and the plant grows prostrate to the ground. Vegetative stolons from which new plants arise usually develop after the plant's flowering period. This stoloniferous connectivity of plants allows shaded plants to achieve photosynthesis in sunlit areas (Grimes, 1979 in Packham, 1983).

In Russian forests, spread of *L. galeobdolon* has been estimated at one m<sup>2</sup> per year (Smirnova and Toropova, 1972, in Packham, 1983), although the spread rate was lower in an English beechwood forest, where the patch radius increased between 50-156 cm per year (Packham, 1983). The plant grows back heavily and can become dominant after coppicing (cutting

back to base) (Plants for a Future, 2004). Although Packham (1983) does not consider *L. galeobdolon* as “aggressive” in Great Britain, the author notes that the plant spreads extensively in woodland areas and that a clonal patch can persist for decades if environmental conditions are ideal.

Reproduction: Information about reproduction by *Lamiastrum galeobdolon* is based upon European populations and comes from Packham (1983). Flower production typically occurs between is greater during hot, dry summers; whereas stoloniferous reproduction is more prevalent during wet, cool ones. The average seed production by a single plant in Great Britain is approximately 800 seeds. Seed dispersal seems to be inefficient in *L. galeobdolon* in the British Isles, although seeds can be carried as far as 70 meters by ant species *Formica rufa* and *Lasius niger*. Germination success under controlled laboratory settings is mixed, but was most successful when the seeds were cold stratified for 6 months. Although only a small number of seeds, technically called schizachenes, ripen, the emergence of seedlings during late spring is a common phenomenon in the southern portion of the British Isles in forests where the canopy is not too dense. Vegetative propagation occurs through stoloniferous plant production as well as through plant fragmentation. When a stem breaks or a portion decays, the resulting fragments grow as individual plants with adventitious root development occurring between leaf nodes.

Response to Herbicide: The best time to apply herbicide, at least in British Columbia, is between summer and fall, when temperatures are higher than 54°F (Graham, 2003). Please refer to the PNW Weed Management Handbook, available online at <http://weeds.ippc.orst.edu/pnw/weeds> for specific herbicide instructions.

Response to Cultural Methods: None found, unless deliberate trampling, to which the plant is susceptible (Packham, 1983) falls under this category. *Lamiastrum galeobdolon* was absent from cattle-grazed forests in northern Spain (Onaindia et al., 2004)

Response to Mechanical Methods: Viny plants are easily pulled out by hand during the fall through early spring; however, great care must be taken to remove all parts of plant, as rooted fragments will regenerate (Graham, 2003). It should be noted that *L. galeobdolon* is highly susceptible to trampling (Packham, 1983).

Biocontrol Potentials: Although the bank vole, *Clethrionomys glareolus*, preferentially consumes *L. galeobdolon* in Europe (Packham, 1983), it is unlikely that this mammal has any potential for biocontrol.

Rationale for Listing: The Washington State Noxious Weed Board currently lists *Lamiastrum galeobdolon* as a Monitor Species. Listing this plant as a Noxious Weed would allow local agencies to increase the priority for controlling this plant in natural areas while there is still a chance of stopping its spread. Moreover, listing this plant as a Class C noxious weed would allow selective mandated control of this weed in high-quality natural areas and in areas where the local community is concerned about its impact. According to the King County Noxious Weed Control Program, the sources of many of the escaped populations occurring in natural areas in that county appear to be compost piles and improperly discarded yard waste. A Class C

listing would facilitate education about the risks and proper disposal of this plant to nurseries, homeowners and landscapers.



Close-up of variegated leaves

Image courtesy King County Noxious Weed Control Program



*Lamiastrum galeobdolon* infestation in Big Finn Hill Park, Kirkland, WA (King County)

Image courtesy King County Noxious Weed Control Program



*L. galeobdolon* spreading on trail in Vashon, WA (King County)

Image courtesy King County Noxious Weed Control Program

#### References:

- *References available from the Washington State Noxious Weed Control Board Office in Olympia.*

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