

Washington Invasive Ranking System

Washington Natural Heritage Program

Marrubium vulgare (White Horehound)

Assessed by

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28 November 2023 (WIRS Version 1.5)

Ecological Impact Rank: **Low** (28)

Confidence: **Low** (33)

Management Difficulty Rank: Insignificant (0)

Confidence: High (80)

Biological Characteristics of Invasiveness: Low (33)

Confidence: High (67)

Concern Related to Distribution and Abundance: High (76)

Confidence: Moderate (40)



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Ranking Notes

None

Legal Listings

[Washington State Weed Board](#): No

[Washington Invasive Species Council](#): No

Section 1: Distribution and Abundance



Figure 1. Distribution of counties where *Marrubium vulgare* has been documented in Washington State (CPNWH, 2023; EDDMapS, 2023; iNaturalist Contributors, 2023).

Q1: Current Range Size in Washington

Rating: High

Confidence: Moderate

Marrubium vulgare is document in 59% of counties in Washington State (CPNWH, 2023; EDDMapS, 2023; iNaturalist Contributors, 2023).

Source: Professional expertise, Herbarium records and other observations

Q2: Current Trend in Total Range

Rating: Moderate

Confidence: Moderate

Reliable data regarding trends are not available. Herbarium records suggest that this species has been present in Washington for over 100 years, with the most recent introduction into a county documented in Walla Walla County in 1979 (CPNWH, 2023; EDDMapS, 2023; iNaturalist Contributors, 2023).

Source: Herbarium records and other observations.

Q3: Proportion of Potential Range Currently Unoccupied

Rating: Low

Confidence: Moderate

Based on spread in other regions that are climatically similar to the Columbia Basin (Weiss et al., 2000; Lucidcentral.org, 2016) *Marrubium vulgare* has potential to spread into some counties for which there are no herbarium records, particularly Grant, Adams, Lincoln, and Douglas Counties.

Source: Informal Publication, Herbarium records and other observations,

Q4: Local Range Expansion or Change in Abundance

Rating: Moderate

Confidence: Low

The assessor has observed significant infill within at least one natural area in eastern Washington.

Source: Professional expertise

Q5: Diversity of Ecosystems Invaded

Ecosystem types: Forest & Woodland, Grassland & Shrubland, Semi-Desert (includes Shrub-steppe)

Rating: Moderate

Confidence: Moderate

This species is known to invade temperate to arid grasslands in other parts of the world (Weiss & Sagliocco, 1994). In Washington, *Marrubium vulgare* also establishes and persists in relatively dry woodlands.

Source: Informal publication, Professional expertise

Section 2: Biological Characteristics

Q6: Aggressive Mode of Reproduction

Rating: Yes

Confidence: High

Large mature plants are known to produce up to 20,000 seeds in wet years in Tasmania, with high germination rates (Lippai et al., 1996; Weiss et al., 2000).

Source: Published research, Informal publication

Q7: Innate Potential for Long-Distance Dispersal

Rating: Yes

Confidence: High

This species produces burs which facilitate long range spread by animals (Weiss & Sagliocco, 1994; Weiss et al., 2000).

Source: Informal Publication

Q8: Potential to be Spread by Human Activities

Rating: No

Confidence: Moderate

This species has been introduced in other areas for medicinal uses (Lodhi et al., 2017), but this appears to be uncommon in the US (Baker, 1986; Cal-IPC, 2004). In Australia, this species has also been used for dune stabilization (Weiss & Sagliocco, 1994).

Source: Published research, Informal publication

Q9: Allelopathy

Rating: Yes

Confidence: Moderate



At least one study has indicated that *Marrubium vulgare* leaf extracts have allelopathic properties (Dallali et al., 2017).

Source: Published research

Q10: Competitive for Limiting Abiotic Factors

Rating: No

Confidence: Moderate

This species is most competitive in areas with heavy grazing. While some sources state this species is deciduous, others report the species remaining green into the winter (Weiss et al., 2000). *Marrubium vulgare* may continue to photosynthesize in relatively mild parts of western Washington, but the assessor is not confident.

Source: Informal publication, Professional expertise

Q11: Growth Form

Rating: No

Confidence: High

This species is a clumping perennial and rarely forms dense monocultures.

Source: Professional expertise

Q12: Germination Requirements

Rating: No

Confidence: Moderate

This species likely requires disturbance, such as livestock soil disturbance, to establish (Weiss et al., 2000).

Source: Informal publication, Professional expertise

Q13: Invasiveness of Other Plants in Genus

Rating: No

Confidence: Moderate

Marrubium vulgare is the only species from this genus in the Washington Flora (Weinmann et al., 2002) and no other taxa from this genus are known to occur in North America.

Source: Professional expertise, Herbarium and other records

Q14: Shade Tolerance

Rating: Low/Insignificant

Confidence: High

This plant prefers full sun and typically invades grasslands where there is little shade (Weiss et al., 2000; Barton & Drost, 2020). In Washington, it only grows in open woodlands without canopy closure.

Source: Informal Publication, Professional Expertise

Q15: Disturbance Tolerance

Rating: No

Confidence: Moderate

This species appears not to resprout after fire, but it is a grazing increaser (Weiss & Wills, 2000).

Source: Published research, Professional expertise

Q16: Propagule Persistence

Rating: >10 years

Confidence: Low

Anecdotally, propagules can persist for more than 10 years, but viability has only been confirmed for three or more years (Weiss et al., 2000; Cal-IPC, 2004).

Source: Informal publication

Q17: Palatability

Rating: Yes, plant is unpalatable

Confidence: Moderate

Reviews of weed control and impact documents strongly suggests horehound is unpalatable to livestock and taints meat (Greonteman, 2018). Horehound is a grazing increaser, further supporting this idea.

Source: Informal publication, Professional expertise

Section 3: Ecological Impact

Q18: Impact on Ecosystem Abiotic Processes

Abiotic Processes: Geomorphology

Rating: Low

Confidence: Low

There is little indication that this species alters abiotic processes significantly, though there are reports that it has been used for dune stabilization (Weiss & Saggiocco, 1994). This plant is a small subshrub or forb that is unlikely to compete for sunlight, except with smaller forbs, grasses, and nonvascular species. This species is noted to prefer calcareous soils (Weiss & Saggiocco, 1994).

Source: Informal publication, Professional expertise

Q19: Impact on Ecosystem Structure

Rating: Insignificant

Confidence: Low

In Washington, this species does not appear to significantly alter vegetation structure.

Source: Professional expertise

Q20: Impact on Ecosystem Composition

Rating: Insignificant

Confidence: Low

Marrubium vulgare appears to have little impact on the composition, diversity, and cover of native plants in Washington. It may be more impactful in other parts of the world, such as Australia and Catalina Island, California (Weiss et al., 2000; Cal-IPC 2004).

Source: Informal publication, Professional expertise

Q21: Impact on Particular Native Species

Rating: Unknown

Confidence: Not Rated

Source:

Q22: Observed Ability to Invade Undisturbed Ecosystems

Rating: Low

Confidence: High

This species requires disturbance to establish and has only been observed to reach significant foliar cover in naturally disturbed ecosystems, or in localized areas of soil disturbance (foot traffic, turkey scratches, invasive treatment areas, etc.).

Source: Professional expertise

Q23: Observed Ability to Invade Naturally Disturbed Ecosystems

Rating: Yes

Confidence: High

Source: Professional expertise

Section 4: Management Difficulty

Q24: General Management Difficulty

Rating: Insignificant

Confidence: Moderate

In Australia, multiple herbicide treatments, extensive manual control, prescribed burning, and establishment of competitive native species is necessary to eliminate large occurrences (Weiss et al., 2000). In Washington hand pulling is effective in controlling small populations. In general, this species has not been a target of control, but there are informational resources available (DiTomaso et al., 2013).

Source: Informal publication, Professional expertise

Q25: Minimum Time Commitment

Rating: Insignificant

Confidence: High

Seed viability in the soil may reach 10 years (Weiss et al., 2000), but generally active management of this species has not been deemed necessary in Washington.



Source: Informal publication, Professional expertise

Q26: Impacts of Management on Native Species

Rating: Insignificant

Confidence: High

Populations in Washington are usually small enough that hand-pulling is a sufficient treatment method. In other parts of the world, prescribed fire and herbicides are effective but result in greater off-target damage (Weiss et al., 2000).

Source: Informal publication, Professional expertise

Q27: Inaccessibility of Invaded Areas

Rating: Insignificant

Confidence: Moderate

This plant generally grows in easily accessible, disturbed environments.

Source: Professional Expertise

Q28: Sociopolitical Implications of Management

Rating: Insignificant

Confidence: High

Medicinal uses for this plant are reported, but actual foraging appears to be quite uncommon (Cal-IPC, 2004). Objections to management are unlikely, aside from generalized objection to herbicide use (which is not required for most populations in Washington).

Source: Informal publication, Professional expertise

Additional Comments

None

References

Baker H.G. 1986. Patterns of plant invasion in North America. *Ecology of biological invasions of North America and Hawaii. Ecological Studies* (ed. by H.A. Mooney and J.A. Drake), pp. 44–57. Springer-Verlag, New York, NY.

Barton B. and D. Drost. 2020. How to grow horehound in your garden. <https://extension.usu.edu/yardandgarden/research/horehound-in-the-garden>. Accessed: November 28, 2023.

California Invasive Plant Council (Cal-IPC). 2004. Plant Assessment Form: *Marrubium vulgare*. <https://www.cal-ipc.org/plants/paf/marrubium-vulgare-plant-assessment-form/>. Accessed: February 5, 2025.

CalPhotos. 2024. Berkeley Natural History Museums, University of California, Berkeley. <https://calphotos.berkeley.edu/>. Accessed: December 17, 2024.

Consortium of Pacific Northwest Herbaria (CPNWH). 2023. Consortium of Pacific Northwest Herbaria Specimen Database. <http://www.pnwhherbaria.org/index.php>. Accessed: October 17, 2023.

Dallali S., S. Rouz, H. Aichi, and H.B. Hassine. 2017. Phenolic content and allelopathic potential of leaves and rhizosphere soilaqueous extracts of white horehound (*Marrubium vulgare* L.). *Journal of New Sciences* 39(3):2106–2120.

DiTomaso J.M., G.B. Kyser, S.R. Oneto, R.G. Wilson, S.B. Orloff, L.W. Anderson, S.D. Wright, J.A. Roncoroni, T.L. Miller, T.S. Prather, C. Ransom, K.G. Beck, C. Duncan, K.A. Wilson, and J.J. Mann. 2013. Weed Report: White Horehound. *Weed Control in Natural Areas in the Western United States*, pp. 544. Weed Research and Information Center, University of California, Davis, CA.

EDDMapS. 2023. Early Detection & Distribution Mapping System. The University of Georgia - Center for Invasive Species and Ecosystem Health. <http://www.eddmaps.org>. Accessed: October 15, 2023.

Greonteman R. 2018. Application to release horehound plume moth and horehound clearwing moth. <https://www.landcareresearch.co.nz/discover>



-our-research/biodiversity-biosecurity/weed-biocontrol/approvals/horehound/. Accessed: November 28, 2023.

iNaturalist Contributors. 2023. iNaturalist Research-grade Observations, Accessed via GBIF.org. <https://doi.org/10.15468/ab3s5x>. Accessed: October 5, 2023.

Lippai A., P. Smith, T. Price, J. Weiss, and C. Lloyd. 1996. Effects of temperature and water potential on germination of horehound (*Marrubium vulgare*) seeds from two Australian localities. *Weed Science* 44:91–99.

Lodhi S., G. Vадnere, V. Sharma, and M. Usman. 2017. *Marrubium vulgare* L.: A review on phytochemical and pharmacological aspects. *Journal of Intercultural Ethnopharmacology* 6(4):429.

Lucidcentral.org. 2016. *Marrubium vulgare*. https://keyserver.lucidcentral.org/weeds/data/media/Html/marrubium_vulgare.htm. Accessed: November 28, 2023.

Weinmann F., P.F. Zika, D.E. Giblin, and B. Legler. 2002. Checklist of the Vascular Plants of Washington State. University of Washington Herbarium. <http://biology.burke.washington.edu/herbarium/waflora/checklist.php>. Accessed: January 3, 2022.

Weiss J., Ainsworth, and I. Faithfull. 2000. Horehound, *Marrubium vulgare*. https://nre.tas.gov.au/Documents/Horehound_CRC_bpmg.pdf. Accessed: November 28, 2023.

Weiss J. and J.-L. Sagliocco. 1994. Horehound, *Marrubium vulgare*-A global perspective. In: Fourth Biennial Proclaimed Animal and Plant State Conference. *Animal and Plant Control Commission*. SA.

Weiss J. and E. Wills. 2000. Integrated management of horehound (*Marrubium vulgare* L.) in Wyperfeld National Park. *Plant Protection Quarterly* 15(1):40–42.

