

Integrated Weed Management FAQs

1. Invasive Species Threaten Biodiversity

Imagine a group of aggressive plants invading a local park, pushing out the native flowers and grasses. This is what invasive species do in real life, causing a significant decline in biodiversity globally. Climate change is expected to worsen this problem. A report by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services ([IPBES](#)) highlights the major and growing threat posed by invasive alien species to nature, with potential irreversible changes to biodiversity and ecosystems. The threat of invasive species is identified by the Colorado Department of Agriculture within their justification for listing noxious weed species and confirmed locally by monitoring on Boulder County Parks & Open Space lands.

Research links

Invasive Species in Forests and Rangelands of the United States: A Comprehensive Science Synthesis for the United States Forest Sector,
<https://link.springer.com/book/10.1007/978-3-030-45367-1>

2. Herbicide Drift: Minimizing the Risk

Herbicide drift refers to the unintended movement of herbicide particles beyond the target area during application. While public concern often focuses on aerial application (helicopters and drones), drift can occur with any method. The risk depends on various factors like equipment, application techniques, weather, and adherence to regulations. Boulder County prioritizes minimizing drift by using the right tools, following strict protocols, and ensuring proper conditions for application.

3. Safeguarding Research Integrity at Universities

Universities acknowledge the potential for conflicts of interest when industry funds research. To ensure research integrity, transparency, and impartiality, they implement various measures:

- **Disclosure requirements:** Researchers must disclose any financial ties to industry sponsors.
- **Independent review:** Rigorous peer review processes involving impartial experts evaluate research proposals, regardless of funding source.
- **Publication and reporting standards:** Academic freedom to publish research findings, positive or negative, in peer-reviewed journals helps maintain researcher independence.
- **Conflicts of interest committees:** These committees review disclosures, provide guidance on managing conflicts, and ensure research is conducted ethically and in the public interest.

- **Training and education:** Researchers and university staff receive training on ethical conduct, conflict of interest, and responsible research practices.
- **Public transparency:** Universities may publish information about industry-funded research, including funding sources, objectives, and outcomes, to enhance accountability.

4. No Conflict of Interest for Boulder County Staff

Concerns have been raised regarding potential conflicts of interest involving Boulder County staff presenting at a weed conference sponsored by chemical companies and a staff member's family member conducting research funded by a chemical company through Colorado State University. The County Attorney clarifies that these situations do not constitute conflicts of interest because the staff members in question lack decision-making authority regarding weed control and do not personally benefit from related decisions.

5. Herbicides: Targeting Plants, Minimizing Impact on Animals

The herbicides used by Boulder County are specifically designed to target plant biology and have minimal impact on mammals (including humans) when used according to label instructions. Herbicides focus on specific processes within plants, like photosynthesis or cell growth, with minimal effect on animal physiology.

Research links

Bringing back Flowering Plants and Pollinators <https://assets.bouldercounty.gov/wp-content/uploads/2019/03/bringing-back-flowering-plants-pollinators.pdf>

[Cheatgrass, Mammals, Birds, Butterflies, and Wildfire: A Study of Ecosystem Interactions \(bouldercounty.gov\)](#)

6. Herbicides and Soil Microbes: Recent Findings

Contrary to some claims, recent studies conducted on Boulder County Open Space by independent researchers and other studies suggest that selective herbicide use in natural areas can benefit soil microbes. By removing invasive plants, these studies observed an increase in native plant growth and a shift in soil microbes towards a more diverse and beneficial community. This aligns with the notion that removing harmful weeds is the quickest way to restore soil health and promote a diverse microbial population. ([Impact of Herbicides on Soil Biology and Function](#))

Research links

“Plant and Soil Microbial Community Composition Legacies Along A 5-Year Time Series Gradient Post-Indaziflam (Rejuvra™) Herbicide Treatment”; Ember Bradbury, Amy Gill,

and Caroline A. Havrilla, 2022, [Understanding spatial variation in grassland fuels to inform wildfire risk mitigation strategies in the Front Range \(bouldercounty.gov\)](#)

“Cheatgrass invasions: History, causes, consequences, and solutions” [Cheatgrass White Paper Dec 2023 formatted \(westernwatersheds.org\)](#)

7. Cheatgrass: A Threat to Biodiversity and Fire Risk

Cheatgrass is a highly invasive plant that significantly reduces biodiversity by outcompeting and suppressing native species. Boulder County monitoring data reveals that cheatgrass-infested sites have half of the native plant diversity compared to healthy grasslands. Additionally, monitoring studies found no rare species in cheatgrass-infested areas, while treated sites supported four rare species.

Research Links

“Cheatgrass invasions: History, causes, consequences, and solutions” [Cheatgrass White Paper Dec 2023 formatted \(westernwatersheds.org\)](#)

“Pollinator-friendly flora in rangelands following the control of cheatgrass (*Bromus tectorum*): a case study
<https://doi.org/10.1017/inp.2021.33https://www.cambridge.org/core/journals/invasive-plant-science-and-management/article/pollinatorfriendly-flora-in-rangelands-following-control-of-cheatgrass-bromus-tectorum-a-case-study/9ECD673CC631B7E823B65A7E05FDD22E>

8. Cheatgrass and Increased Fire Risk

Extensive research confirms that cheatgrass poses a significant fire hazard. Cheat grass dries out quickly, forming a layer of flammable material (thatch) that alters natural fire patterns and increases the risk of fires starting. Thatch causes fire to spread faster, threatening both natural areas and communities.

Research links

“Cheatgrass invasions: History, causes, consequences, and solutions” [Cheatgrass White Paper Dec 2023 formatted \(westernwatersheds.org\)](#)

[“Controlling Annual Grasses in Sagebrush Communities with Higher Resistance and Resilience is Crucial to Prevent Fire Risk and Invasion Expansion”
Harrison_idaho_0089E_12681.pdf \(uidaho.edu\)](#)

‘Introduced annual grass increases regional fire activity across the arid western USA (1980-2009)’ [Introduced annual grass increases regional fire activity across the arid western USA \(19802009\) \(umass.edu\)](#)

9. Herbicides and Petrochemicals

Herbicides are not directly derived from oil or natural gas, although some ingredients might be obtained through the oil and gas refining process. It's important to clarify that they are not classified as petrochemicals.