

Oct 27 @ 7: Evaluating Existing Control Methods for *Ventenata dubia* and their Effectiveness

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In British Columbia less than 1% of our native ecosystems are grasslands and despite their relative size they play an important role on our landscape, hosting more than 30% of at BC's risk species, sequestering carbon, pollinating agricultural crop, and as intrinsic cultural significance for First Nations people (WSP 2010). These ecosystems are under constant pressure and risk from a multitude of invasive species, among these invaders is an emerging threat to BC's grasslands known as *Ventenata dubia*. *Ventenata dubia* is a winter annual grass that has been invading sagebrush steppe ecosystems along with ponderosa pine ecosystems in the United states pacific northwest (Fryer 2015). The objectives for this meta-analysis are to research current control methods that are used for *Ventenata dubia* and rate their efficacy, and to set-up recommendations for management of *Ventenata dubia*. To fulfill the objectives of the meta-analysis in January of 2020 papers were gathered and reviewed using an integrated pest management lens and from them control methods were found. These control methods were then ranked from not effective, poor, effective, and very effective. When the physical/mechanical, biological, and cultural controls were ranked the only effective treatment that occurred was the addition of fertilizer to a site, with hand pulling and seeding both ranking as poor. Chemical control was shown to be far more effective overall with only glyphosate and picloram being not effective and imazapic rated as poor. The short-term herbicides of rimsulfuron, sulfosulfuron, and fluenacet plus mertibuzin all were ranked as very effective. For long-term herbicides indaziflam, indaziflam with glyphosate and indaziflam with rimsulfuron, were all rated very effective while propoxycarbazone-sodium was ranked only as effective. Based on these results I suggest herbicide treatment with indaziflam (by itself or with another herbicide) or a short-term herbicide that rated very effective in conjunction with a fertilization treatment. As well I recommend not only being reactionary but also being proactive and look to find ways to prevent establishment in the first place through actions such as cleaning equipment and making sure the shoulders of the roads are seeded. Based on this meta-analysis future research into both palatability of *Ventenata dubia* in other ungulate species (not just cattle) as well as the effects of prescribed fire used in successive seasons on *Ventena dubia* would both be beneficial to better understanding and controlling *Ventenata dubia*.