

Evaluating Effectiveness of Mowing as a Method to Reduce Re-growth of Scot's Broom (*Cytisus scoparius*)

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Background

- The Range and Training Land Assessment (RTLTA) component of the Integrated Training Area Management (ITAM) program at Joint Base Lewis-McChord (JBLM) began a project in 2011 to evaluate how seasonal timing of mowing affects the re-growth rate of Scot's Broom (*Cytisus scoparius*).
- Scot's Broom is a prolific invasive perennial shrub that reduces maneuverability, visibility, and native prairie structure.
- Brush mowing for ITAM is a year-round effort, however, if Scot's Broom is more vulnerable to mowing during a certain season, control efforts could be concentrated during that period to maximize effectiveness.
- The study site includes various training areas on JBLM military installation in the South Puget Sound region of Washington. Training areas have both mixed coniferous forest and open prairie-oak habitats. Research was only conducted in prairies where Scot's Broom has the ability to greatly affect training for mission-oriented soldiers.

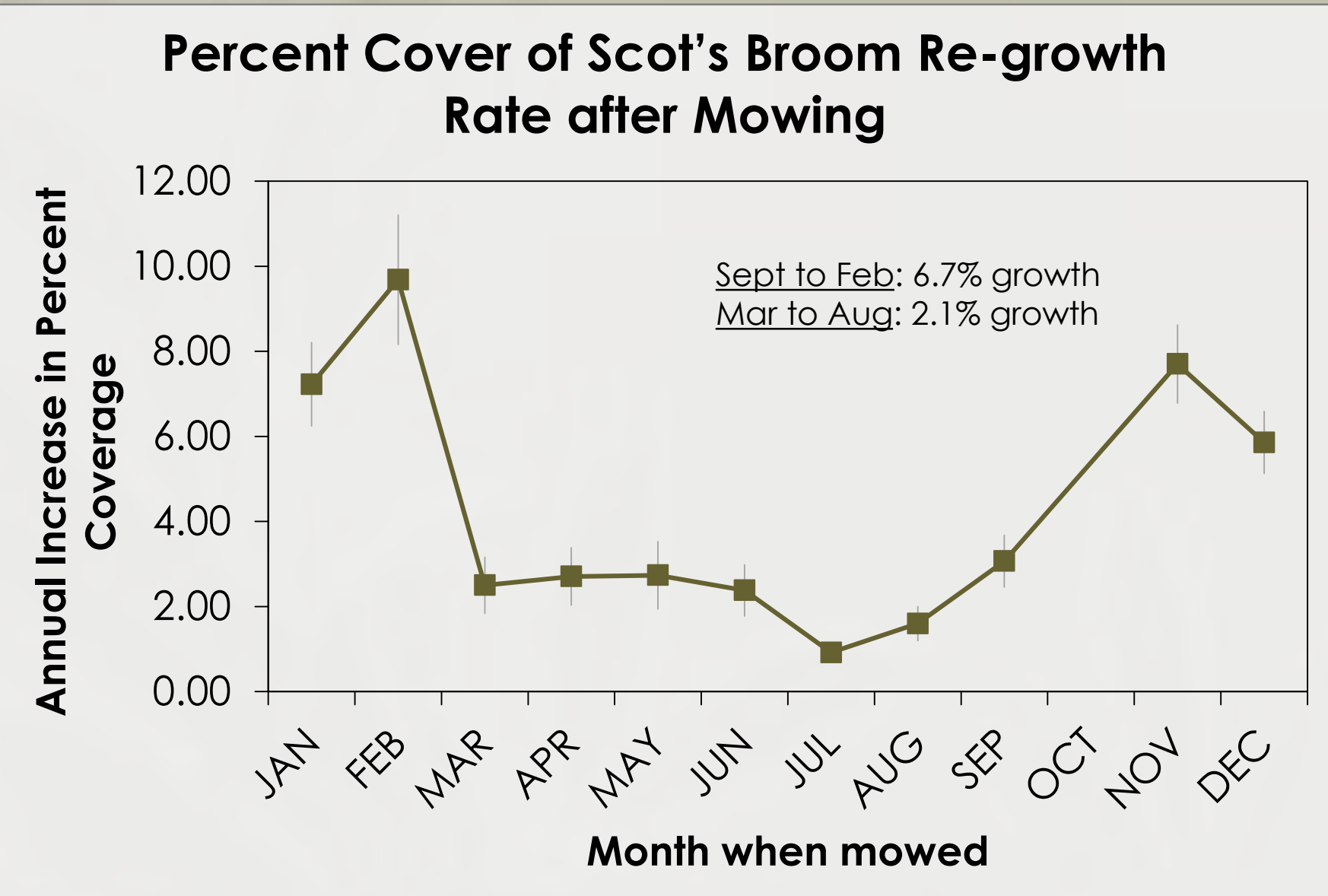
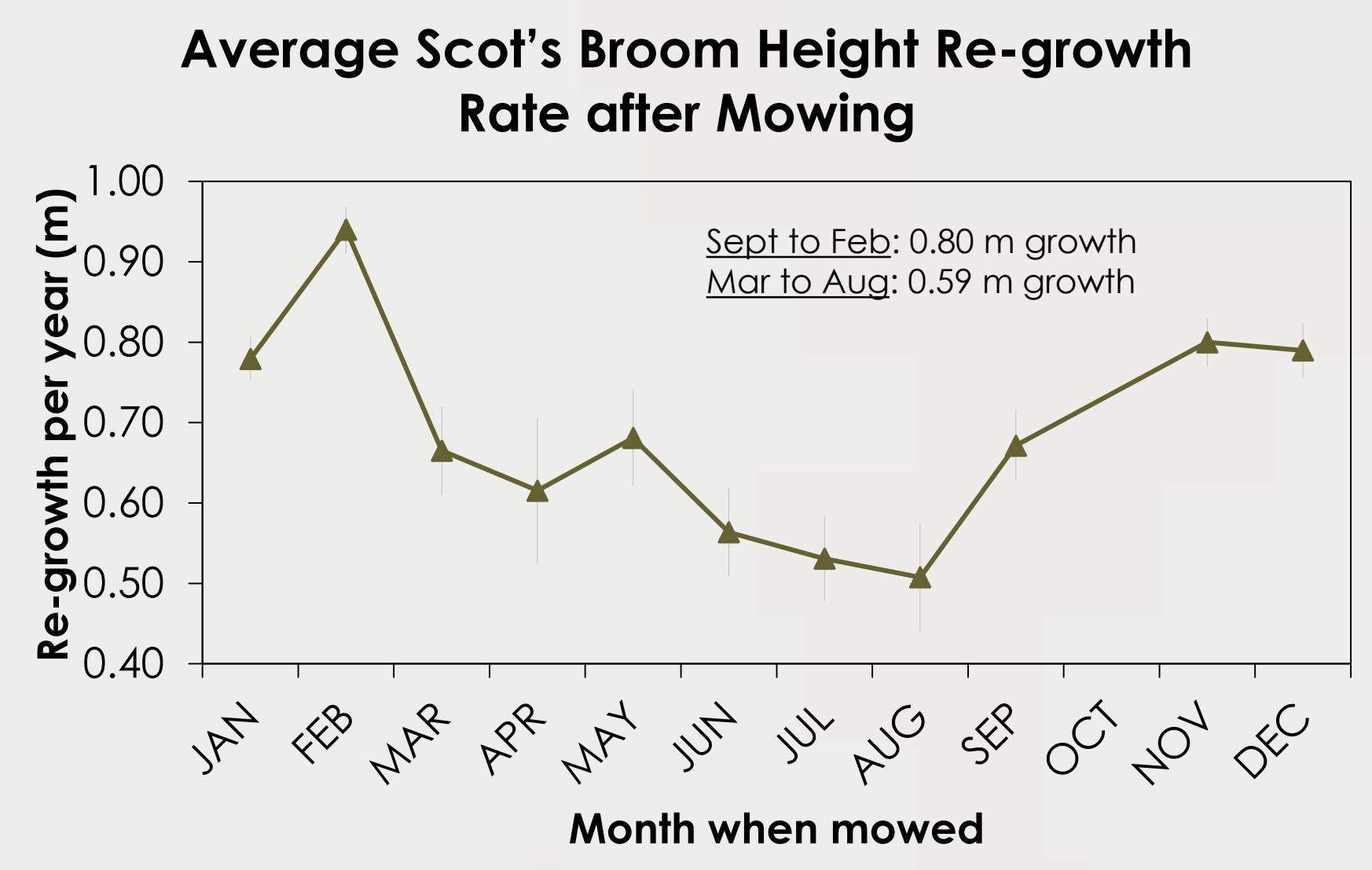
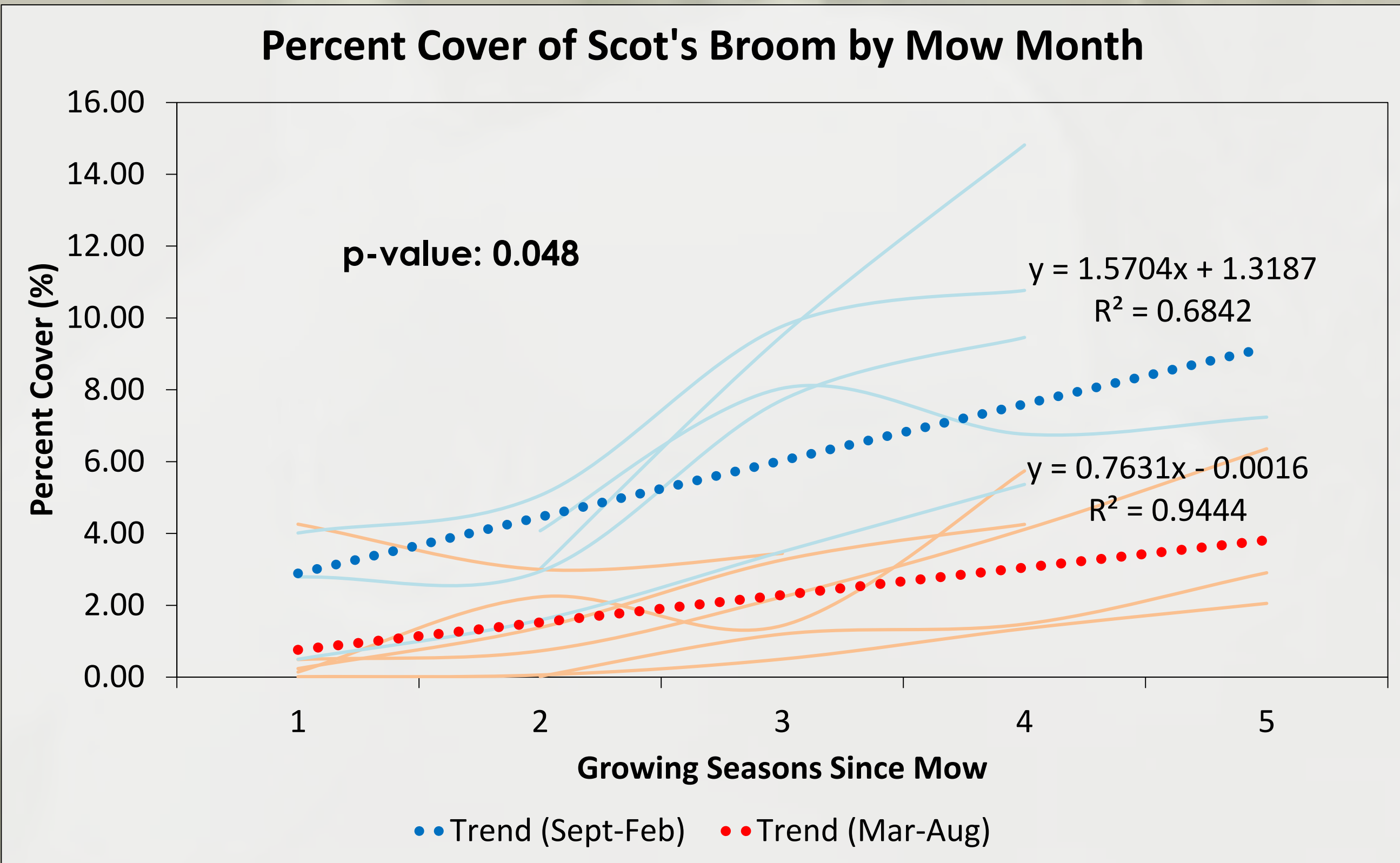
Methods

- Partnering with the Land Rehabilitation and Maintenance (LRAM) component of the ITAM program, RTLTA established 109 50-meter transects in areas mowed by LRAM during different months of the year.
- Sites varied in Scot's Broom establishment, training area, and location in the prairie-oak landscape.
- **Line intersect** and **quadrat data** were collected to estimate **average percent cover** and **average height** of Scot's Broom for each transect over a **four year period**.



Results

- Our original hypothesis was that re-growth would be slowest if mowed in the late summer, when conditions are harsh and the plant has expended most of its energy flowering.
- We found that mowing any time during the fall and winter (September - February) yielded nearly *three times* the re-growth rate for both cover and height compared to areas mowed in the spring and summer (March - August).



Discussion & Partnership

- The information learned from this study will assist LRAM and others in continuing to establish best management practices for controlling Scot's Broom, and utilizing the time spent mowing to most effectively control for Scot's Broom.
- RTLTA and LRAM will continue working together to continue learning about improving methods and efficiency in reducing Scot's Broom.
- A major caveat in this study is that we do not know the pre-treatment density for any of the transects.
- We recommend using these established transects to collect data to further enhance our understanding of how to limit Scot's Broom regrowth. It may be useful to look at weather trends and environmental factors to see which has a greater effect on re-growth rates.

References and Acknowledgements

Bossard, C. C., & M. Rejmanek. 1994. Herbivory, growth, seed production, and resprouting of an exotic invasive shrub *Cytisus scoparius*. *Biological Conservation* 67:193-200.

Wheeler, C. T., O. T. Helgerson, D. A. Perry, & J. C. Gordon. 1987. Nitrogen fixation and biomass accumulation in plant communities dominated by *Cytisus scoparius* L. in Oregon and Scotland. *Journal of Applied Ecology* 24(1):231-237.

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