

Monitoring Animal Use of Invasive Himalayan Blackberry (*Rubus armeniacus*) on Joint Base Lewis-McChord

Rachel Johnson, Fayth Shuey, and Erik McDonald



Introduction

- Himalayan blackberry (*Rubus armeniacus*): Type C noxious weed, highly invasive in WA, outcompetes native vegetation preventing establishment of desirable trees (King County Noxious Weed Control Program, 2014)
- Seeds in soil can be viable for years, reproduces by root and stem fragments and by seed; animals use thickets for foraging opportunities and shelter (WA Invasive Species Council)
- Need to understand how Himalayan blackberry shapes community structure and what species are impacted by aggressive management methods
- Joint-Base Lewis McChord manages wilderness with Himalayan blackberry and Oregon grape (*Berberis aquifolium*), a native shrub with edible fruit, sharp leaves like holly, and shelter space for small mammals and birds – opportunity to compare native and invasive plant cover



Figure 1. Maps of region and site locations. Source: Google Earth.

Methods

- Trail cameras were placed: one per site within Himalayan blackberry bramble and Oregon grape
- Two blackberry sites (Johnson Marsh, Chambers Creek) and one Oregon grape site (Muck Creek) were selected by convenience and establishment (Figure 1)
- When more cameras became available 5 weeks in, there were then three, two, and one stationed, respectively
- Run time was 10 weeks, starting January 7 and ending March 13

Results

- Muck Creek site camera caught only **1 species (1 sighting)**
- Johnson Marsh site had **11 species (89 sightings)**
- Chambers Creek site had **8 species (40 sightings)**
- Higher frequency of sightings in second half of monitoring period**

Johnson Marsh Trail Camera Sightings

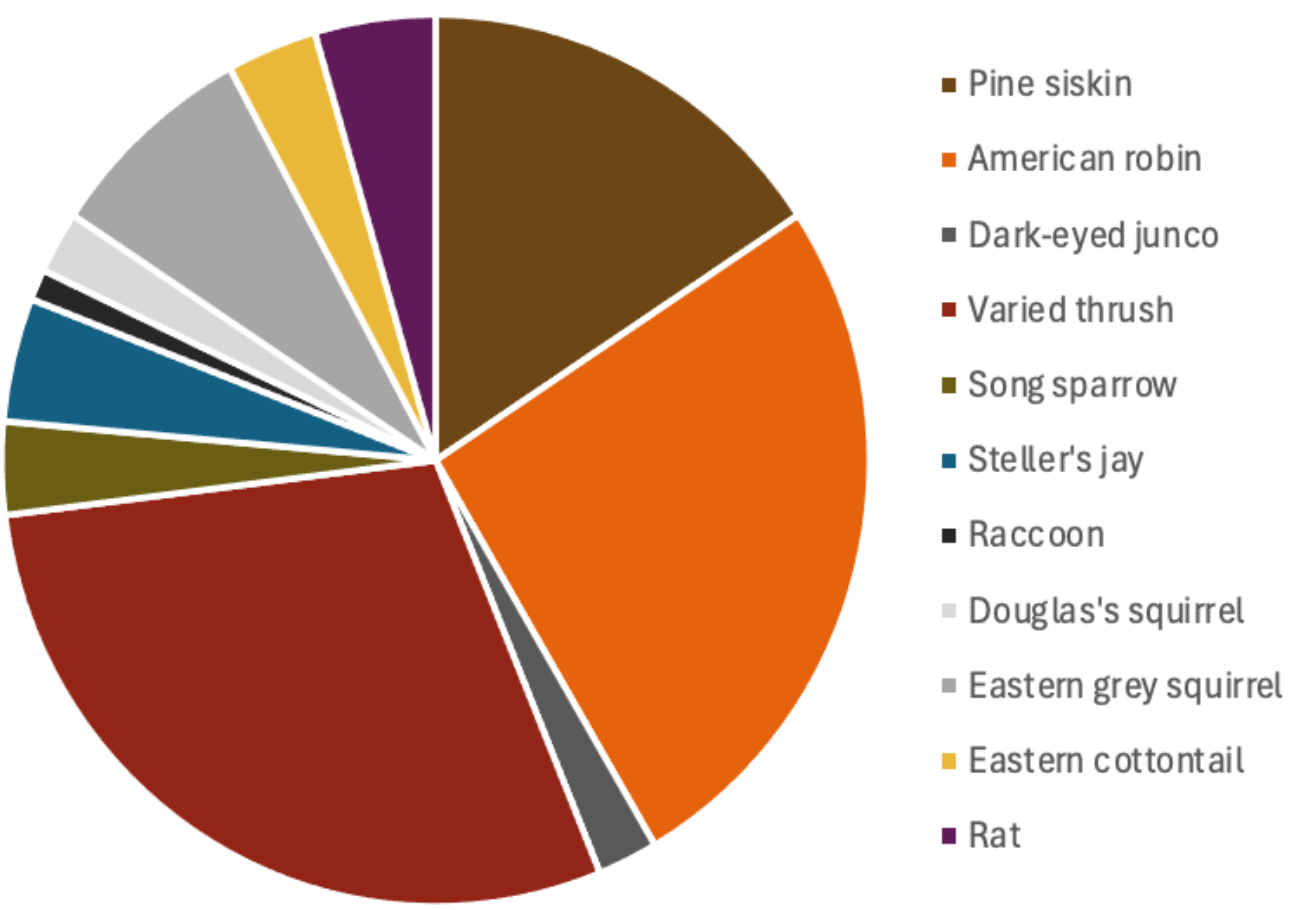


Figure 2. Proportions of species spotted at the Johnson Marsh blackberry site.

Chambers Creek Trail Camera Sightings

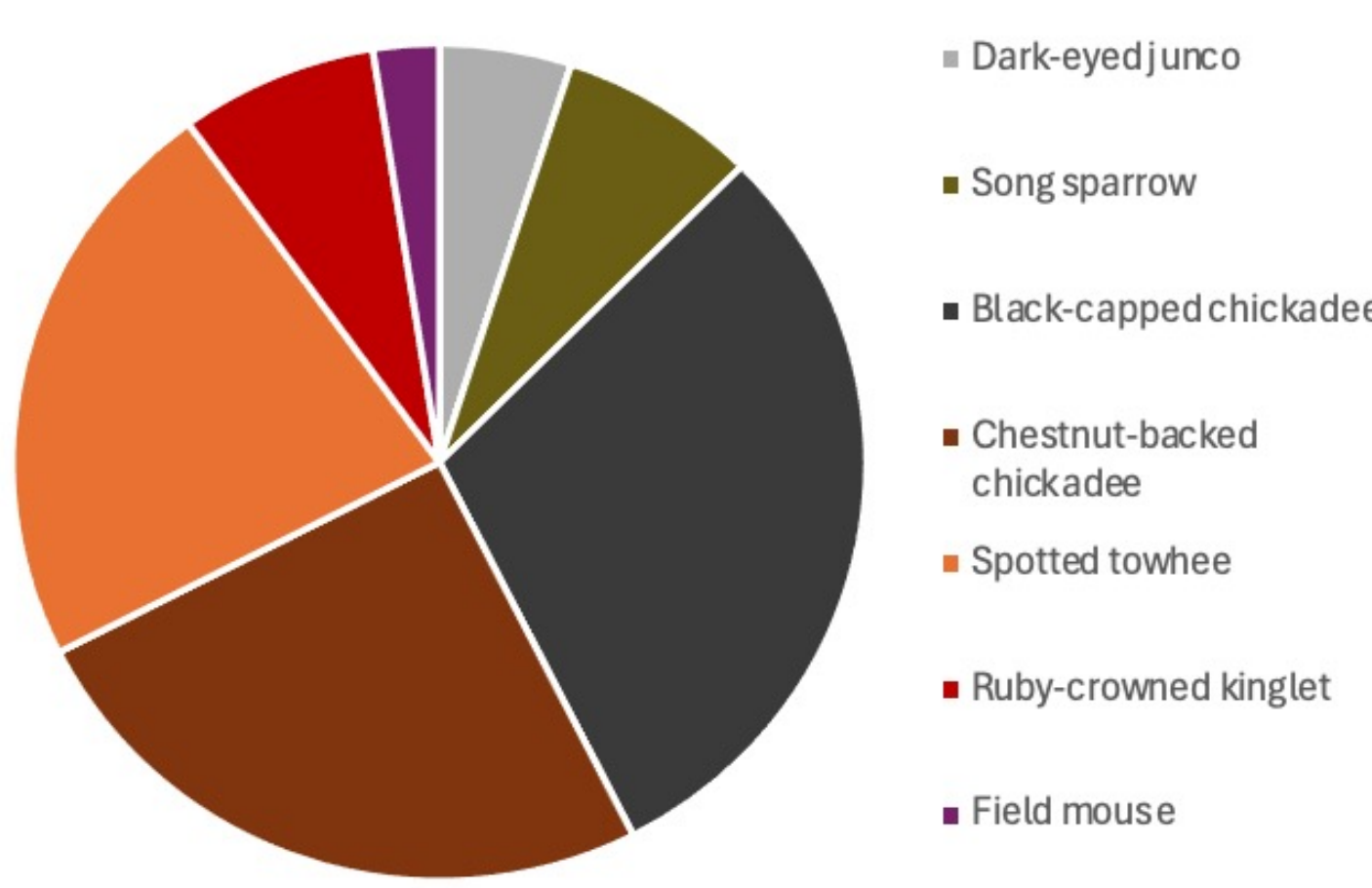


Figure 3. Proportions of species spotted at the Chambers Creek blackberry site.



Figure 4. Chambers Creek camera sighting: spotted towhee.



Figure 5. Johnson Marsh camera sightings: eastern grey squirrel (top left), eastern cottontail (top right), Steller's jay (bottom left), Douglas's squirrel (bottom right).

Conclusion

Discussion

- None of the birds or mammals sighted are listed as species of concern; several are nonnative in western Washington (rats, eastern grey squirrel, eastern cottontail) (Figure 2, 3, 5)
- Several bird species sighted are experiencing population decline due to habitat loss, such as the Steller's jay, the varied thrush (Cornell Lab) and the pine siskin, which has declined by 69% between 1966 and 2019 (Collins, 2024) (Figure 2, 4, 5)
- JBLM wilderness is a unique setting in which military training activity can disturb wildlife, yet valuable and protected ecosystems are managed year-round
- Himalayan blackberry is utilized by common “backyard” species, some of which have experienced long-term population decline
- Himalayan blackberry management requires long-term investment and repetition to prevent spread and re-establishment; recognizing declining species informs management efforts for landowners and conservation

Muck Creek

- Muck Creek Oregon grape site: why was there only one sighting?**
- Camera availability: based on comparison of other site captures, may have been affected by only one camera being available
 - Camera placement: camera may have been placed in a low-traffic area
 - Oregon grape: species may not have provided viable forage or cover
 - Site limitation: only one site, study limited by site-specific characteristics – possibly fewer animals nearby that would utilize the grape

Future Research

- Future studies should explore seasonal variation in activity to identify when management activities are least impactful to native species
- Supplement camera footage with regular audio and visual surveys
- Compare animal species, abundance, and diversity within well-established blackberry against restoration sites post-removal

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REFERENCES

