



Microhabitat Selection in the Wandering Salamander (*Aneides vagrans*)

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(Left) A stump with a "1" classification. (Right) A stump with a "3" ranking. Note the difference in the amount of surface fissures on each stump.



A wandering salamander (*Aneides vagrans*) from the study area.

Introduction

- Wandering salamanders live in logs, wood, and tree stumps^{1,5}
- Widespread deforestation in PNW⁴
- Identifying features making microhabitats attractive to *A. vagrans* can inform management decisions and conservation actions
- Hypothesis: *A. vagrans* presence greatest in stumps with a large diameter, extensive interstitial spaces, greater canopy cover, surrounded by predominantly natural substrate

Methods

- Surveyed **30 stumps** - 8 on the Cal Poly Humboldt campus, 22 in the Arcata Community Forest (Fig. 1)
- Measured **diameter** and **canopy cover** at each stump, **surface cover** within 5 m of stumps
- Index of cracks** - 1-3
 - 1: no/few cracks; 3: many cracks
 - Crack: fissure on stump's surface
- Three nocturnal³ **visual encounter surveys**, tally of salamanders found
- Negative Binomial Regression test to analyze data

Results

- 95 salamander** observations at **13 stumps**
 - 5 on campus, 8 in the Community Forest
- Significant** relationships found between salamander count and **stump diameter** ($p = 0.000214$) and **crack index** ($p = 4.04e-08$; Fig. 2)
 - 9% ($n = 9$) of *A. vagrans* observations at at "1" stumps, 13% ($n = 12$) at "2" stumps, 78% ($n = 74$) observations in stumps with "3" classification despite these representing 10% ($n = 3$) of stumps
- No significance** between *A. vagrans* count and **canopy cover** ($p = 0.126$) or **surface cover** ($p = 0.080$)

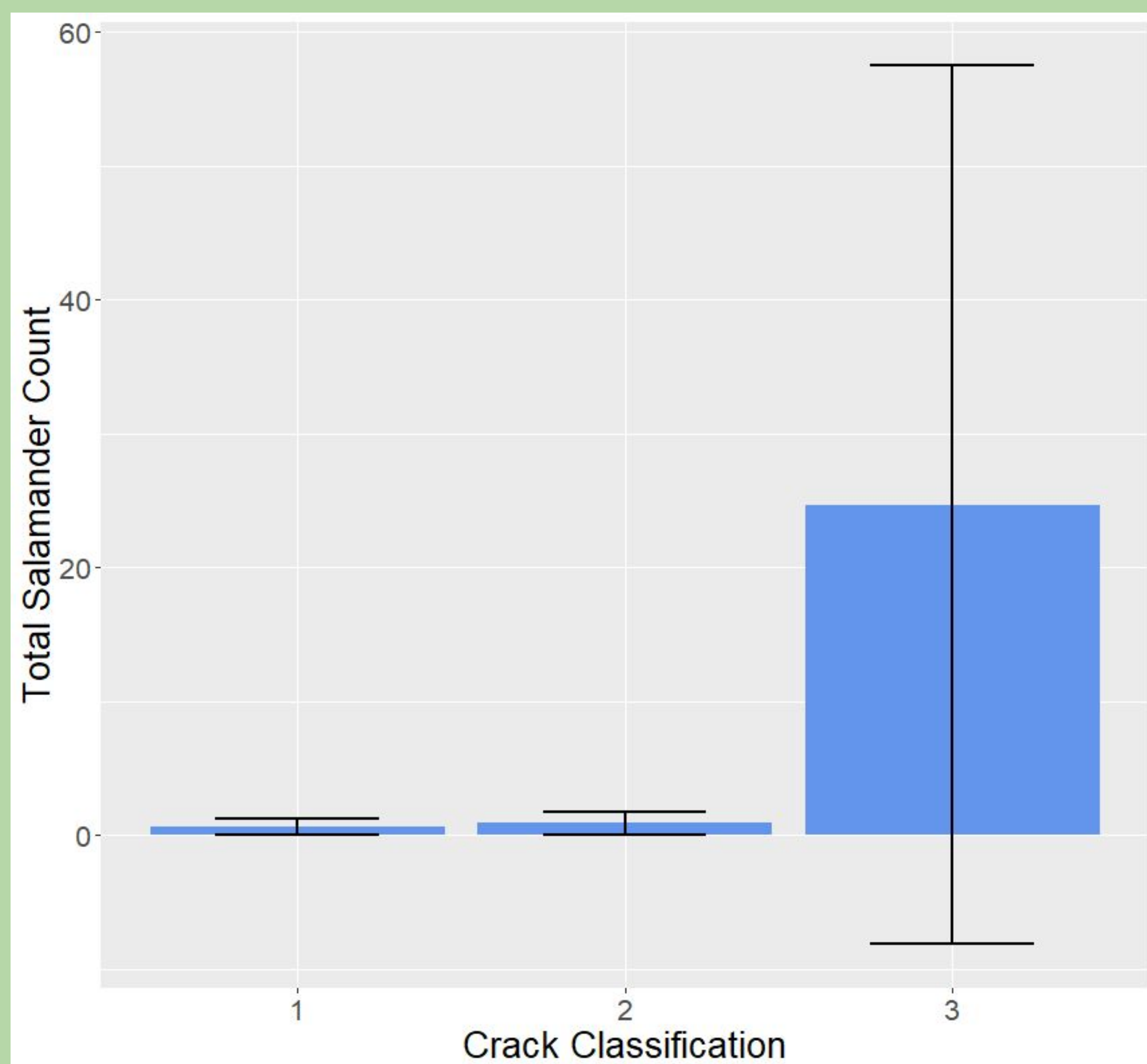


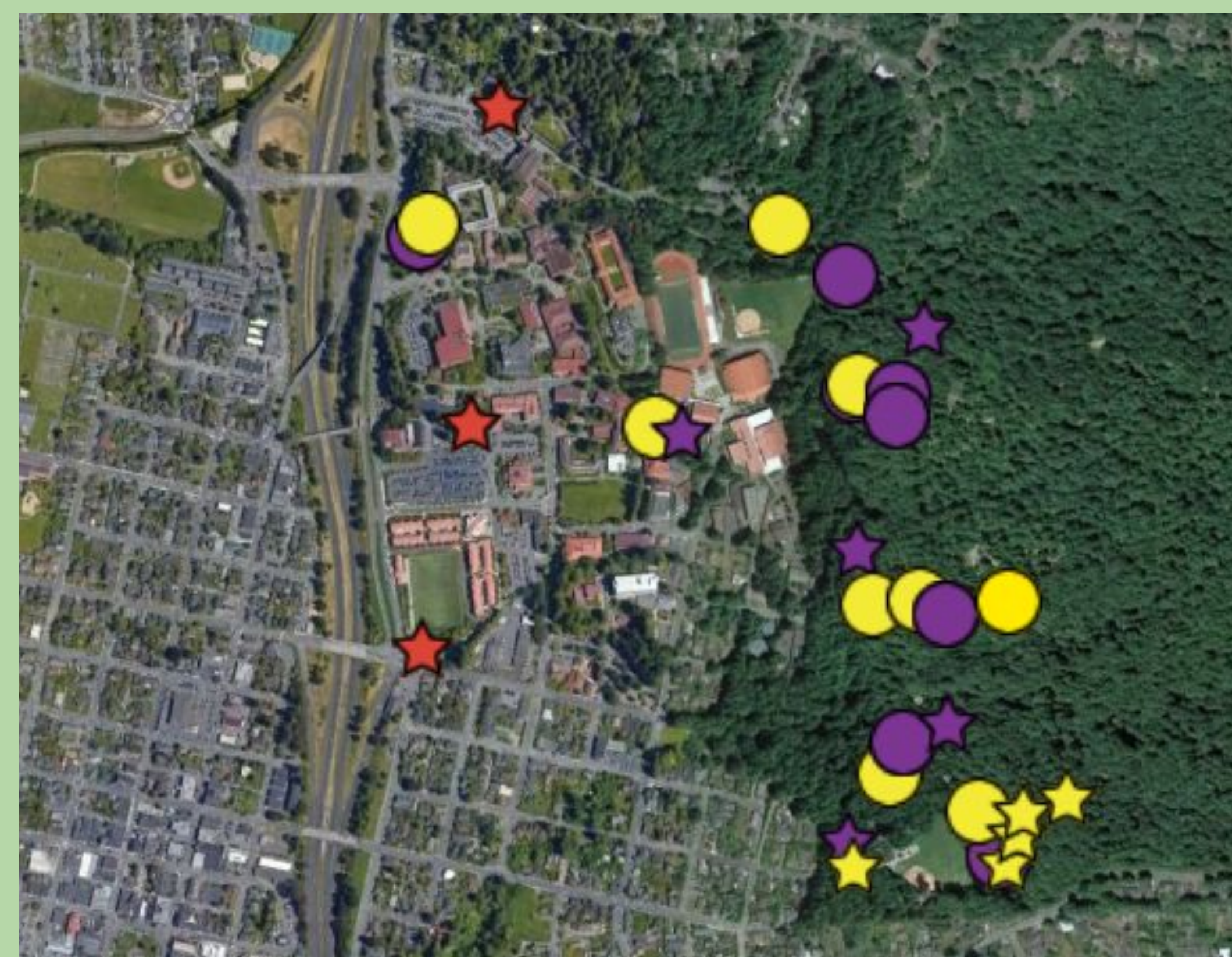
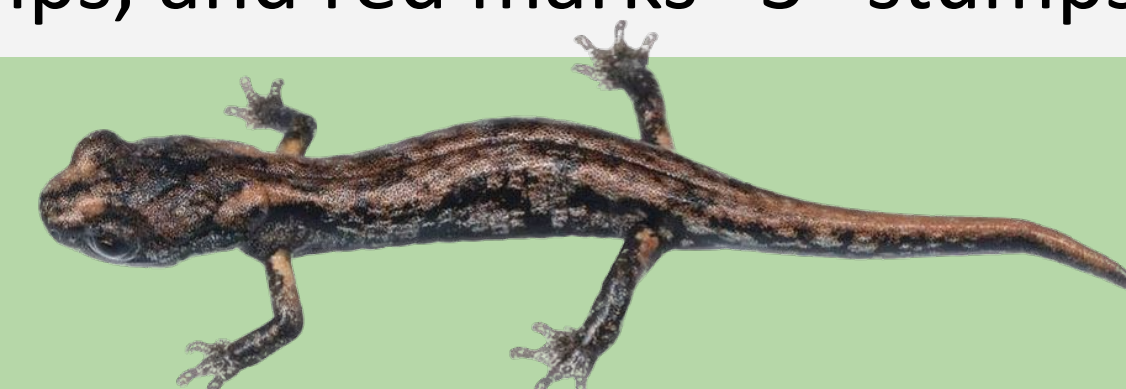
Figure 2. Wandering salamander count in stumps with increasing crack classification (ranked 1-3).



An adult wandering salamander crawling on a stump on the Cal Poly Humboldt campus. Individuals of all age classes were observed during visual encounter surveys.



Figure 1. Map of the study area. Stars indicate stumps where *A. vagrans* were observed, dots designate stumps where this species was not observed. Colors correspond to crack classification: Yellow for "1" stumps, purple denotes "2" stumps, and red marks "3" stumps.



Discussion

- Hypothesis that diameter and crack index impact count was supported, did not find evidence that canopy or surface cover impact count
- Stumps likely constitute important refugia in urban landscapes
- Important to preserve stumps with large diameters & interstitial spaces
- Anecdotal observations in urban habitats away from stumps²; warranting future research

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Citations

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