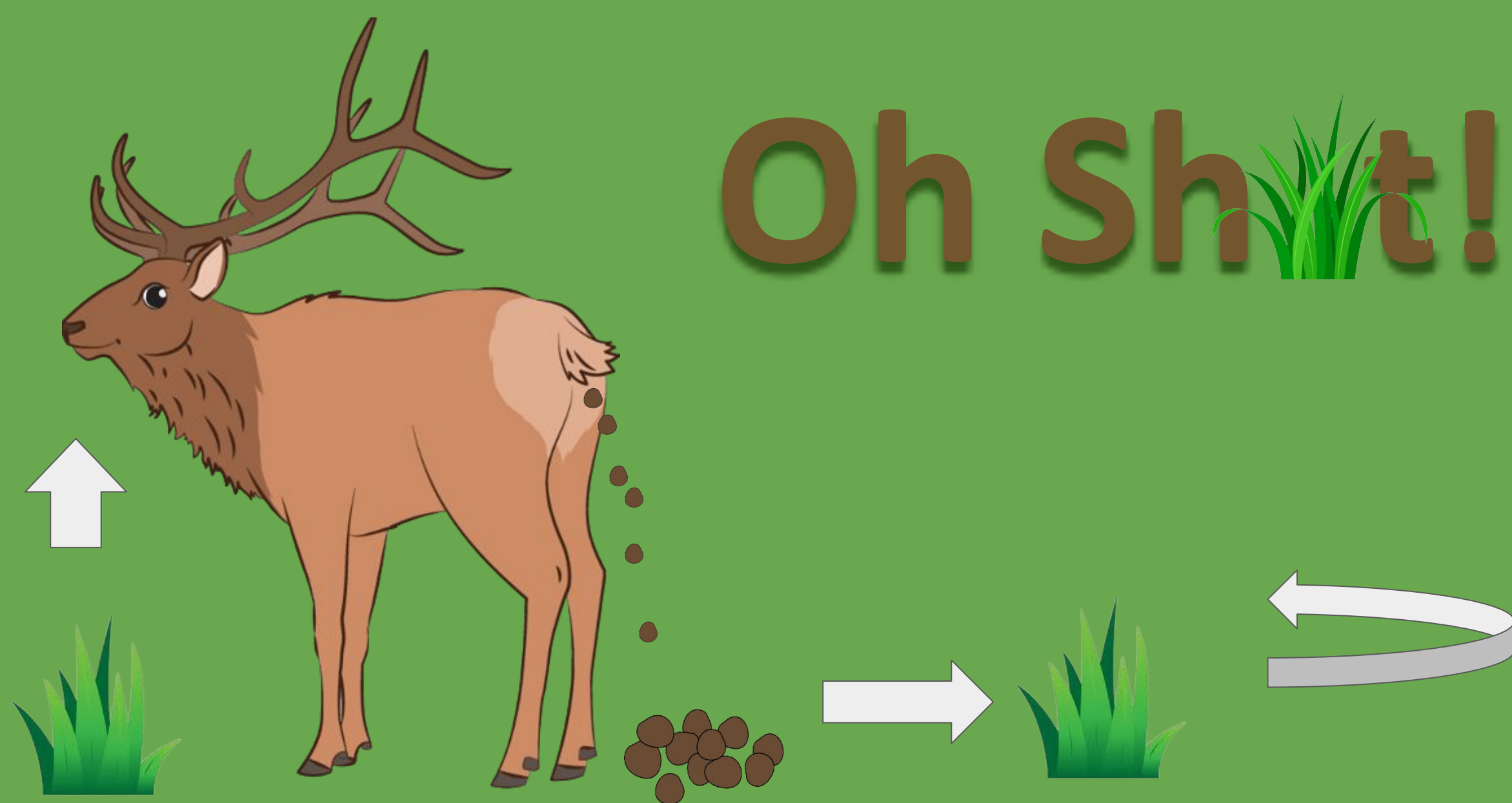


Oh Sh*t! Roosevelt Elk Spread Invasive Plants

H.



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Introduction

Invasive plants and Roosevelt elk play important roles within an ecosystem, but knowledge on their interactions and ungulates roles as seed dispersers are limited¹. This study looked at Roosevelt elk in Humboldt County and if their pellets germinated plants, specifically invasive or native.

Methods



Humboldt County, CA at Elk Country R.V. Resort and Campground located in northern Trinidad and several locations in Orick.



1st round of collection: 14-19 Sep 2022
2nd round of collection: 19-24 Jan 2023



Davison Road group & Red School house group

Pellet Collection:

Randomly collected 2 pellets from separate pellet groups
60 pellets/elk group
Total = 120/collection period
N = 240 pellets overall

Germination:

1st round of pellets: G&B Organic Potting Soil, watered with hose set to shower.
2nd round of pellets: G&B Simples Seed Starter Soil, watered using trays.
Half of the pellets from each round were planted whole, the other half were broken before planting.
10 control pots were set up filled with only soil.

Analysis:

Plants were identified and categorized as invasive or native. Chi squared and t-test statistical analyses were performed.



Results

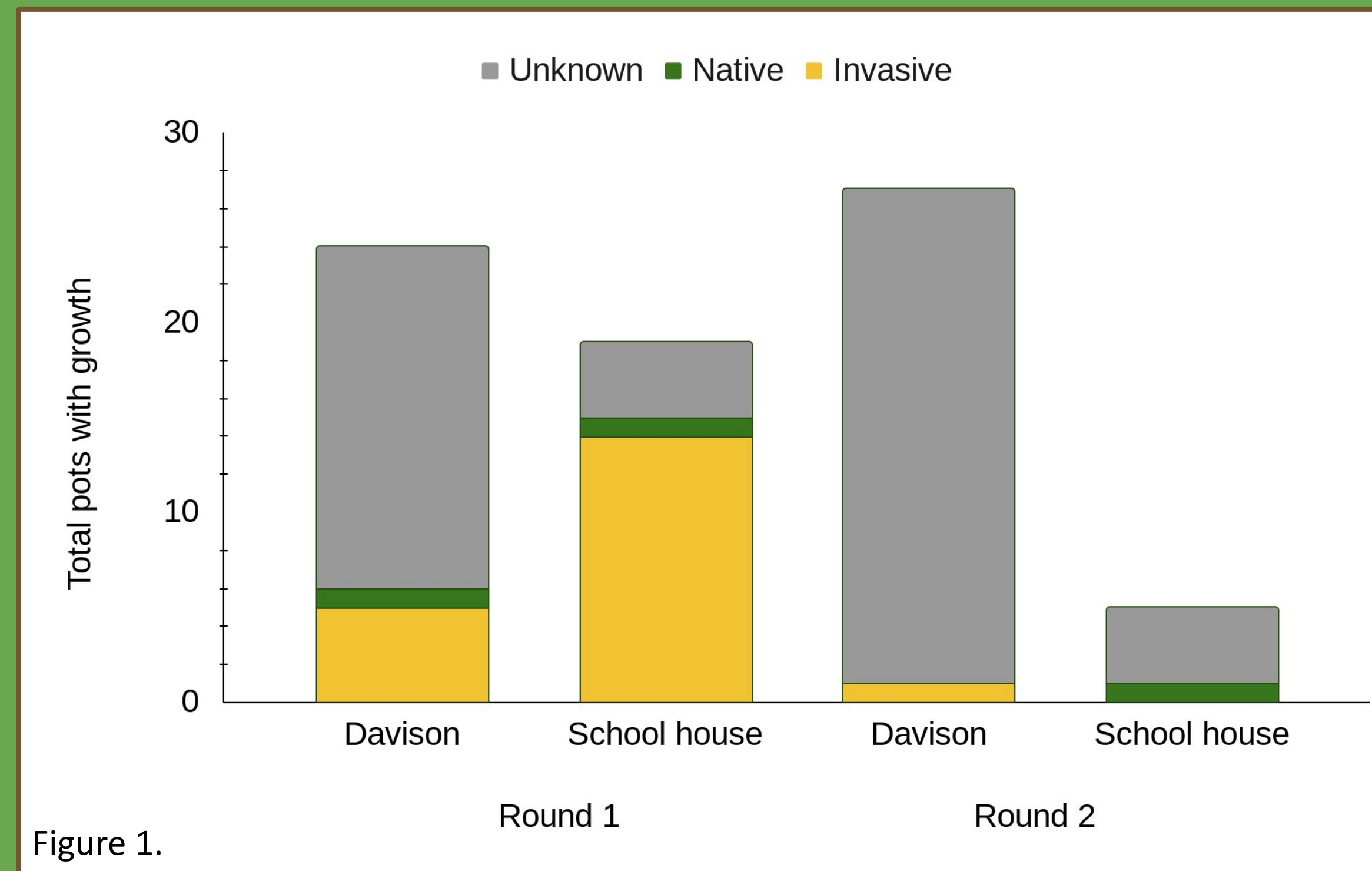


Figure 1.

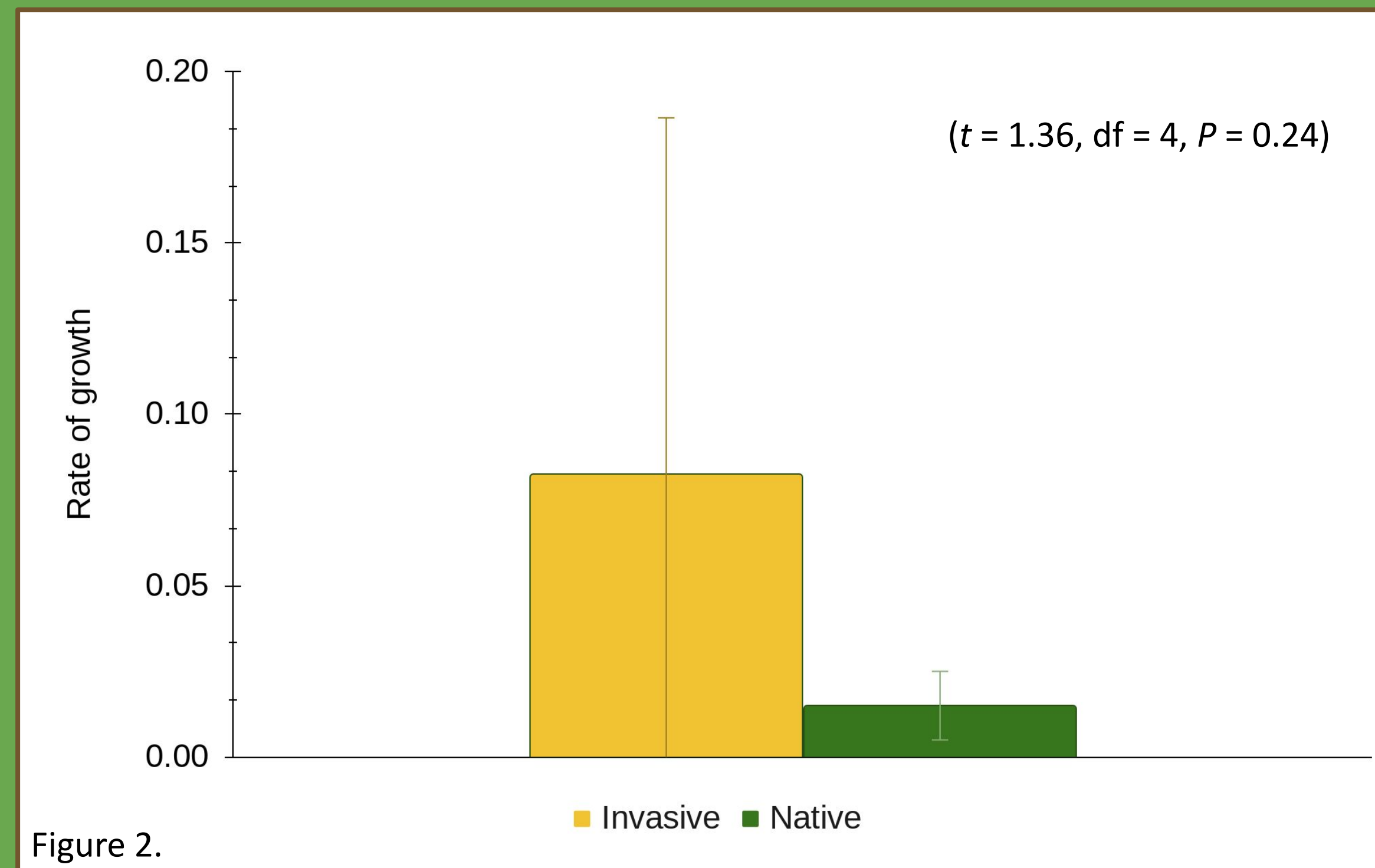


Figure 2.

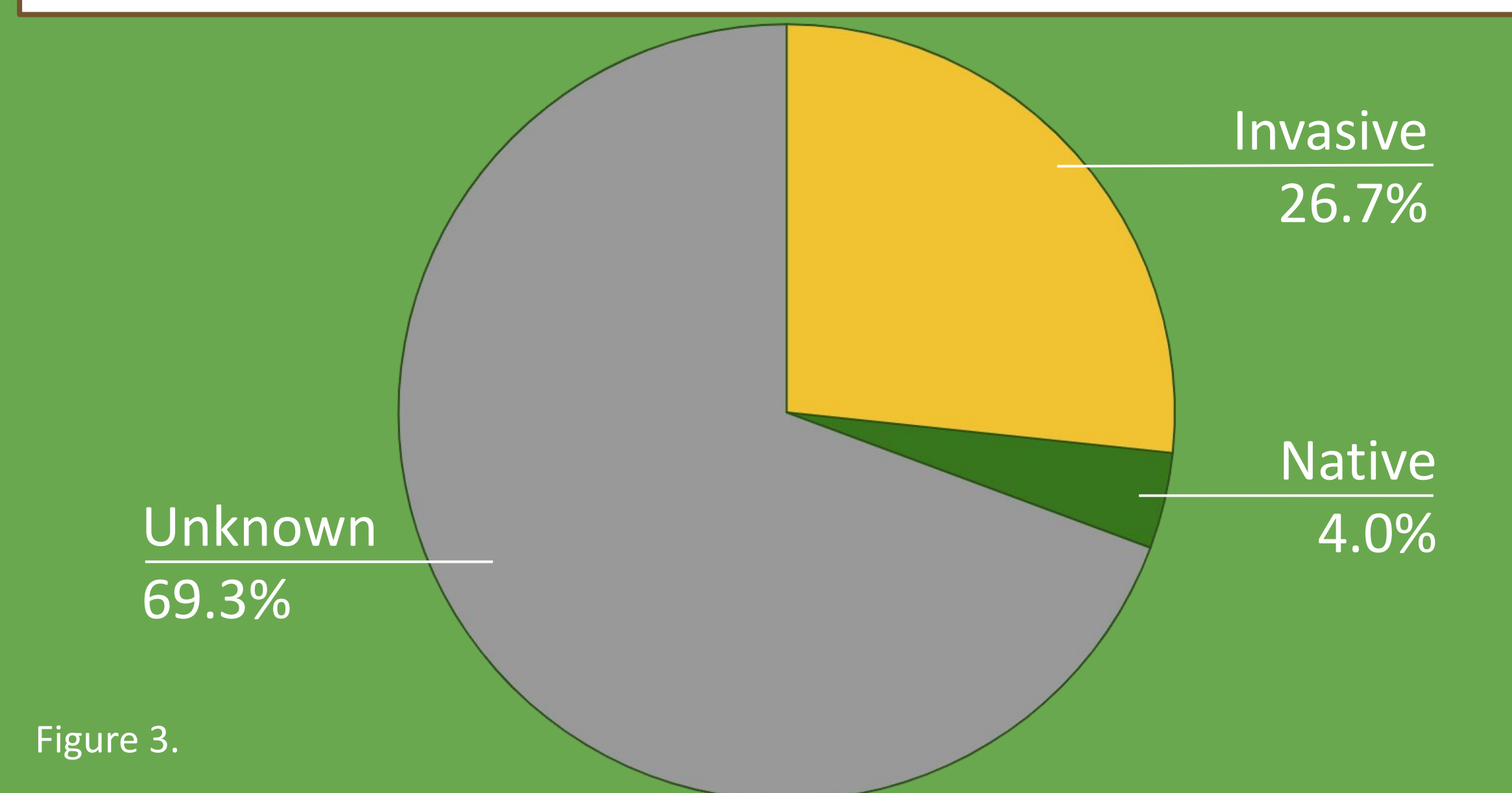


Figure 3.

- Total pots with growth by elk groups, collection rounds, and by status (Fig 1).
- Insignificant difference in rate of growth by status (Fig 2).
- 75 pots in total had growth, of these 26.7% were identified as invasive (Fig 3).
- No difference in growth if pellets were broken or not.
- No difference in growth between collection rounds.
- Difference in rate of growth between elk groups ($\chi^2 = 14.14$, df = 1, $P < 0.01$).

Discussion

- Supported the prediction that if Roosevelt elk are eating invasive plants, then invasive plants would germinate from pellets.
- This study supported previous studies on the viability of seeds after passing through an ungulates gut.
- Pellets will germinate broken or not broken, something previous studies did not look at.
- This study suggests that Roosevelt elk may be dispersal agents of invasive plants through endozoochory.
- Managers may be able to predict areas of colonization of invasive plants based off of elk movements, and concentrate invasive plant removal in known elk territory.

Scientific Name	Common Name	Status	Number Grown
<i>Carex obnupta</i> *	Slough sedge	Native	2
<i>Juncus bufonius</i> *	Toad rush	Native	1
<i>Holcus lanatus</i>	Common velvet grass	Invasive	6
	Sticky mouse-ear		
<i>Cerastium glomeratum</i> *	chickweed	Invasive	5
<i>Poa annua</i>	Annual bluegrass	Invasive	3
<i>Rumex acetosella</i>	Sheep sorrel	Invasive	2
<i>Dactylis glomerata</i>	Orchard grass	Invasive	1
<i>Daucus carota</i>	Queen Anne's lace	Invasive	1
<i>Plantago lanceolata</i>	English plantain	Invasive	1
<i>Ranunculus repens</i> *	Creeping buttercup	Invasive	1
<i>Agrostis</i> *	Bentgrass	NA	18
<i>Poa</i> *	Grass	NA	12
Unknown	NA	NA	31

Note; * indicates best guess at identification.

Acknowledgements

This research took place on the present and ancestral homeland and unceded territory of the Yurok and Wiyot tribes.

First and foremost I would like to convey my deep gratitude to my advisor Dr. Micaela Szykman Gunther for allowing me to conduct this study under her mentorship and for her guidance along the way. Thank you to California State Parks, the National Park Service, Carrington Hilson, the owners of Elk Country R.V. Resort and Campground, Brianne Lee, Ula Simonsen-Webb and Jessica Calderon, Victoria Durazo and Robin Bencie, and the Wildlife Stockroom. Last but not least, thank you to my friends, specifically Kellie Crouch and Andrea Cazares, and my family for providing me with ideas, feedback, and lots of moral support.

Literature Cited

1. Gilli, R. M. A., and V. Beardall. 2001. The impact of deer on woodlands: the effects of browsing and seed dispersal on vegetation structure and composition. *Forestry: An International Journal of Forest Research* 74:209-218.