

## Environmental Memetics: Exploring Public Perception of Invasive Conifers in NW Patagonia

Pedro Laterra (\*), Melina Zuliani - Fundación Bariloche & CCT CONICET Patagonia Norte - San Carlos de Bariloche, Prov. Río Negro, Argentina

### INTRODUCTION & AIMS

Invasive exotic conifer species pose a significant threat to biodiversity, ecosystem services, and fire risk in various regions worldwide, including areas in northwest Patagonia, Argentina. The Red PINOS partnership, established in 2021, brings together NGOs, scientific institutions, and government bodies to develop participatory governance strategies to mitigate the impacts of invasive conifer species like *Pinus contorta*, *P. radiata*, and *Pseudotsuga menziesii* in Bariloche and its surroundings.

Based on memetics and the spreading activation theories about how cultural traits evolve over time, we are exploring the public perception of these invasive pines in Bariloche by analyzing citizens' memes as words associated with pine forests.

### METHODS

A total of 106 face-to-face surveys were conducted during the austral winter of 2023, targeting key public areas within the city. Respondents were presented with images of invasive pine encroachment and a Red PINOS poster promoting citizen participation, and asked for the first five words elicited by them. Each word was considered as a meme representation.

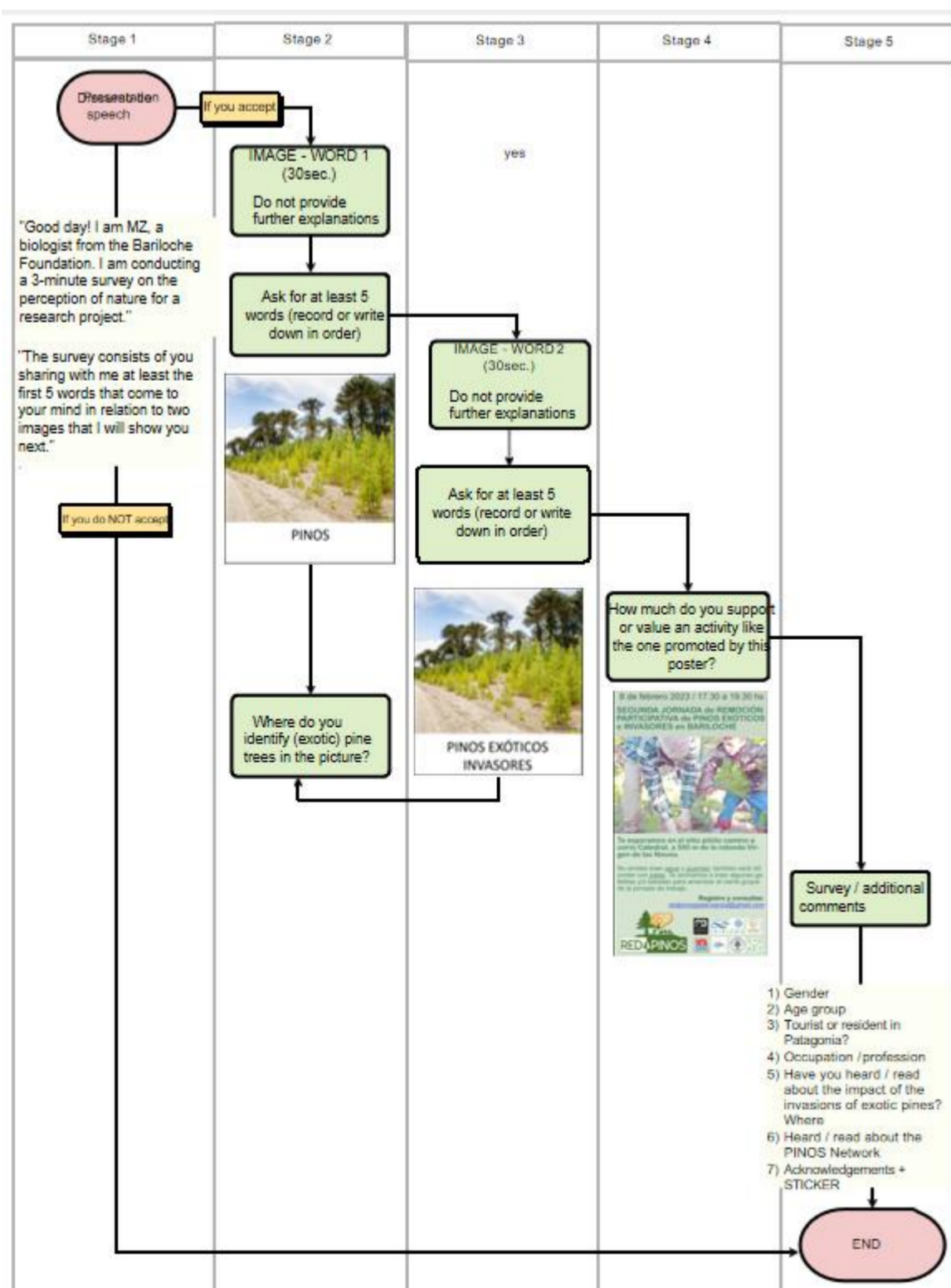


Fig. 1. Flow chart of survey procedures.

PINOS poster promoting citizen participation, and asked for the first five words elicited by them. Each word was considered as a meme representation.

### RESULTS & DISCUSSION

Results show that while "greenness" and "natural" were the most common memes associated with pines (31% and 27% of responses, respectively), "invasion" and "non-native" received negligible responses (5% and 1%). Notably, despite the significant scientific knowledge locally available and the strong impact of exotic conifer invasions in the region, 82% reported no prior knowledge about the environmental impacts of pines. Despite this lack of awareness, 55% of respondents expressed a high to very high level of adherence to the call for citizen participation in the second image showing the Red PINOS poster.

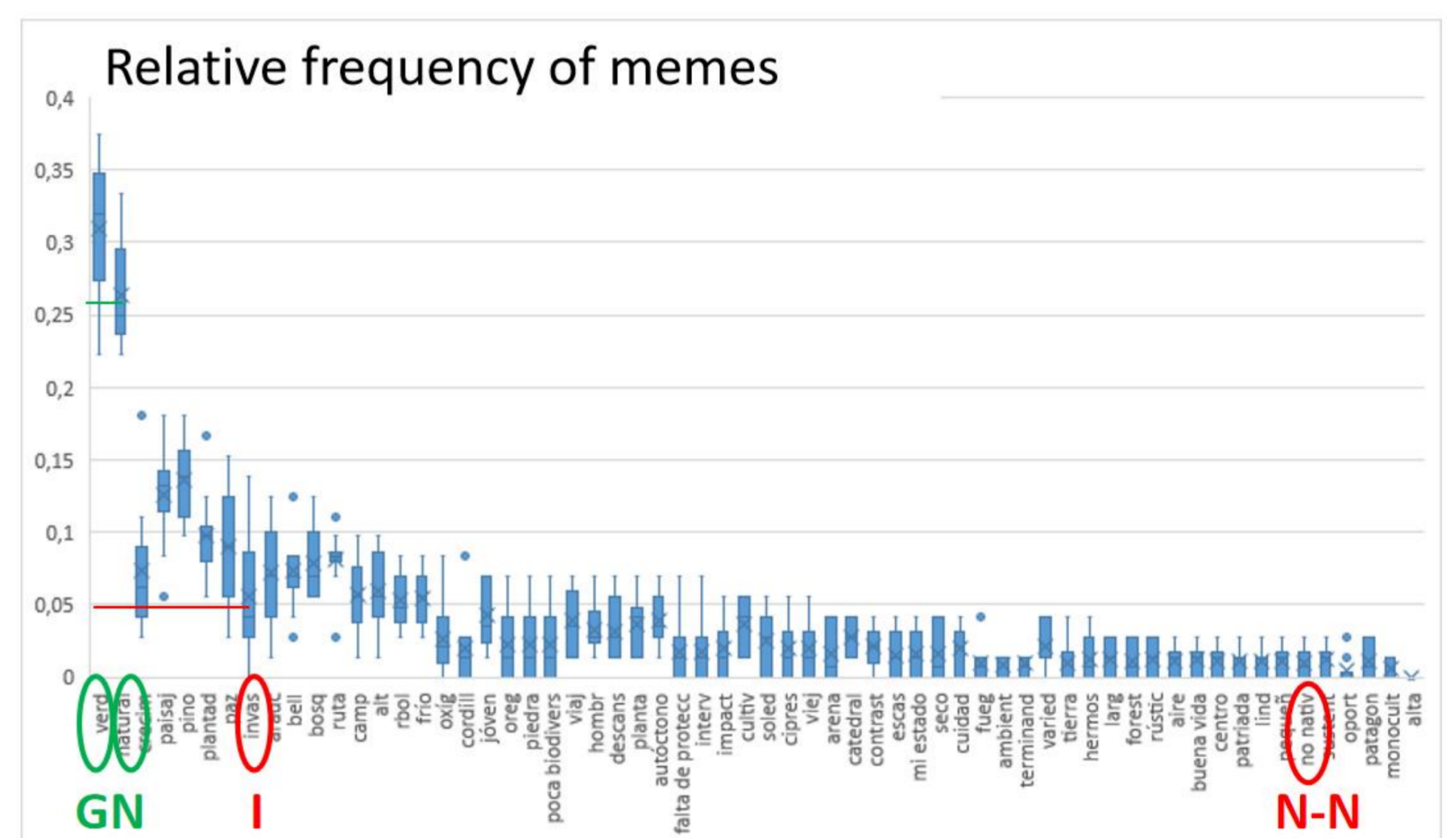


Fig. 2. Relative frequencies of collected memes. G: greenness, N: natural, I: invasion/invasive/invader, N-N: non-native. Other meme acronyms are not detailed.



### CONCLUSIONS

This study, while preliminary, highlights a critical gap in public knowledge about invasive conifers, suggesting a need for greater public awareness campaigns and participatory management strategies to effectively address this growing threat in northwest Patagonia. It also reveals a positive potential for a shift in perception through targeted outreach and engagement efforts.