

Different Intrusive Objects Elicit Various Territorial Responses by Damselfish Species *Stegastes arcifrons* and *Stegastes beebei* in Tijeretas Bay, Galapagos



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BACKGROUND



- AFFECTED BY COMMUNITY STRUCTURE (WARNER AND HOFFMAN 1980)
- RECOGNITION & MEMORY (SILVEIRA ET AL 2021)
- EFFECT COMMUNITY STRUCTURE (CECCARELLI AND JONES, 2001)

HYPOTHESIS & GOAL

- WILL STEGASTES ARCIFRONS AND STEGASTES BEEBEI SIGNIFICANTLY MODIFY THEIR TERRITORIAL BEHAVIOR WHEN CONFRONTED WITH VARIOUS FOREIGN OBJECTS
- ADDITIONAL NEIGHBOR AND ANTHROPOGENIC HYPOTHESIS



METHODS

LOCATION

- TIJERETAS BAY, SAN CRISTOBAL, GALAPAGOS

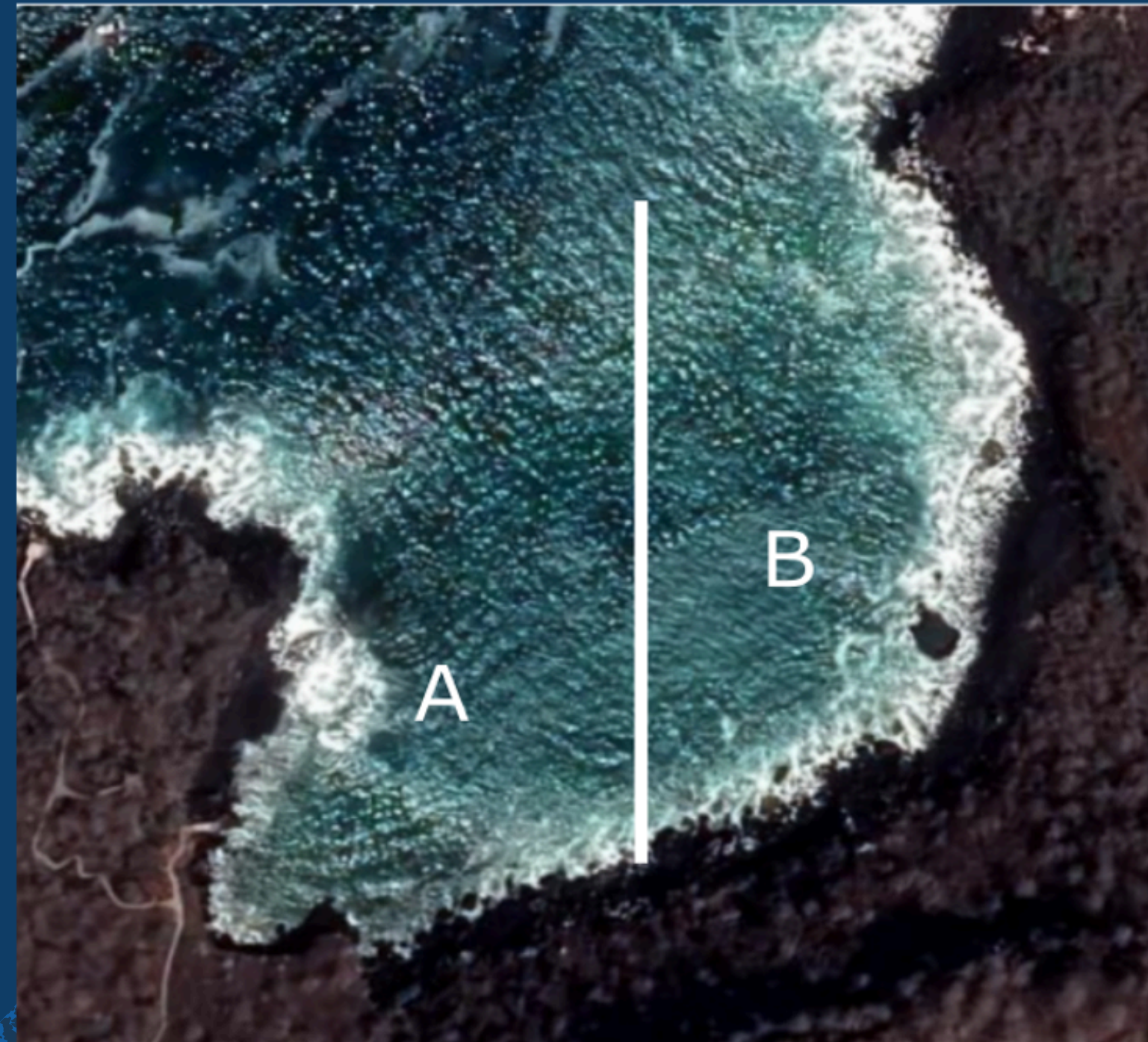
- 8 VIDEO RECORDINGS/OBJECT

METHODS

- PLACE INTRUSIVE OBJECTS IN NEST

- RECORD BEHAVIOR

- COUNT THE NUMBER OF NEIGHBORS



EXAMPLE



ANALYSES

VIDEO ANALYSIS

- INTEREST TIME
- INTERACTION TIME
- BEHAVIOR LEVEL (NABMR)

STATISTICAL ANALYSIS

- TWO-WAY ANOVA OBJECT & ZONE BOTH INTEREST AND INTERACTION AS DEPENDENT
- TWO-WAY ANOVA OBJECT & NEIGHBORS BOTH INTEREST AND INTERACTION AS DEPENDENT

2WA Interaction

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Object	3	3306	1102.1	28.633	3.11e-14 ***
Zone	1	15	15.2	0.395	0.531
Object:Zone	3	90	30.0	0.779	0.508
Residuals	128	4927	38.5		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

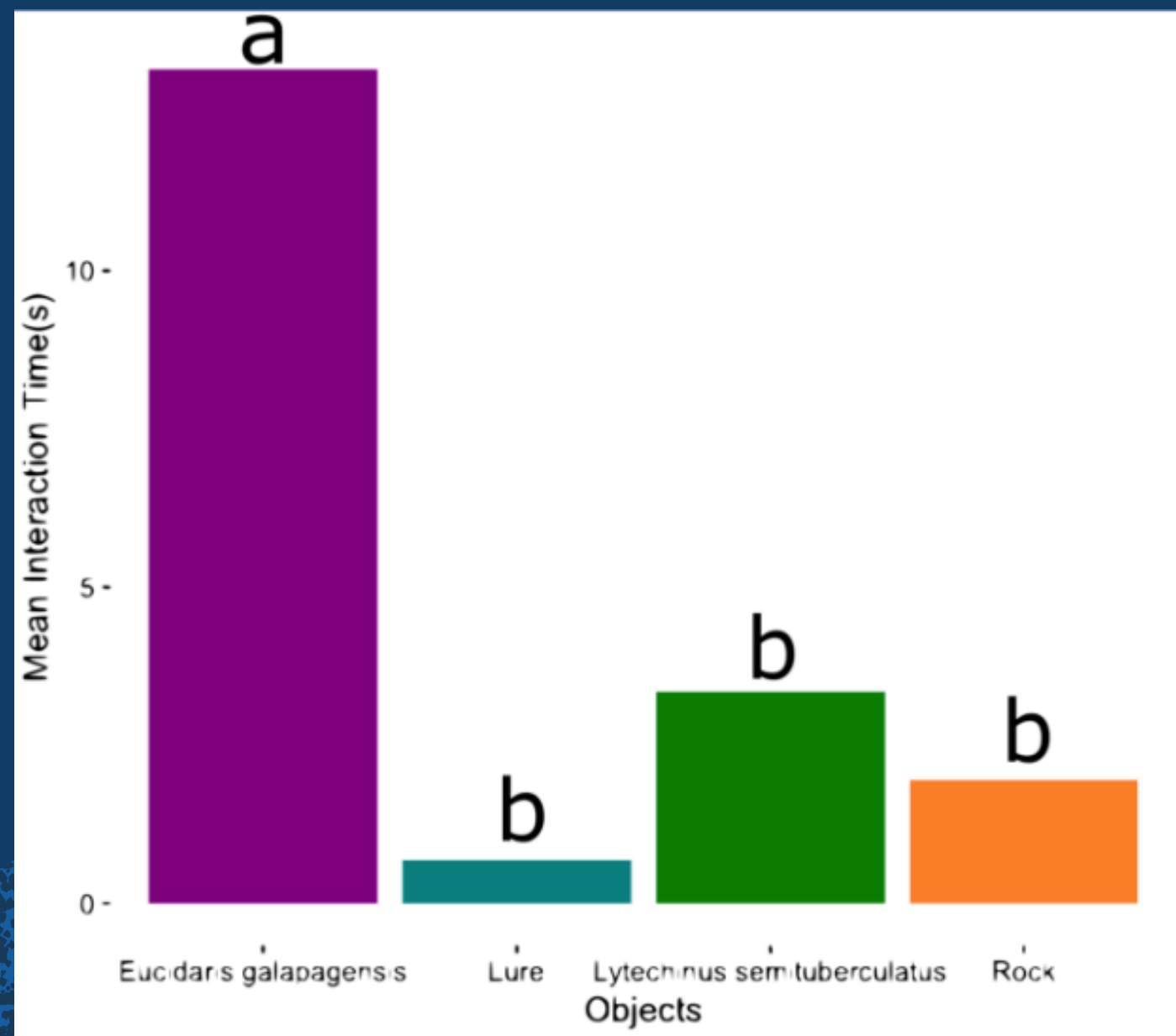
Interest 2WA

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Object	3	6699	2233.1	5.761	0.000996 ***
Zone	1	172	172.5	0.445	0.505920
Object:Zone	3	630	210.1	0.542	0.654446
Residuals	128	49616	387.6		

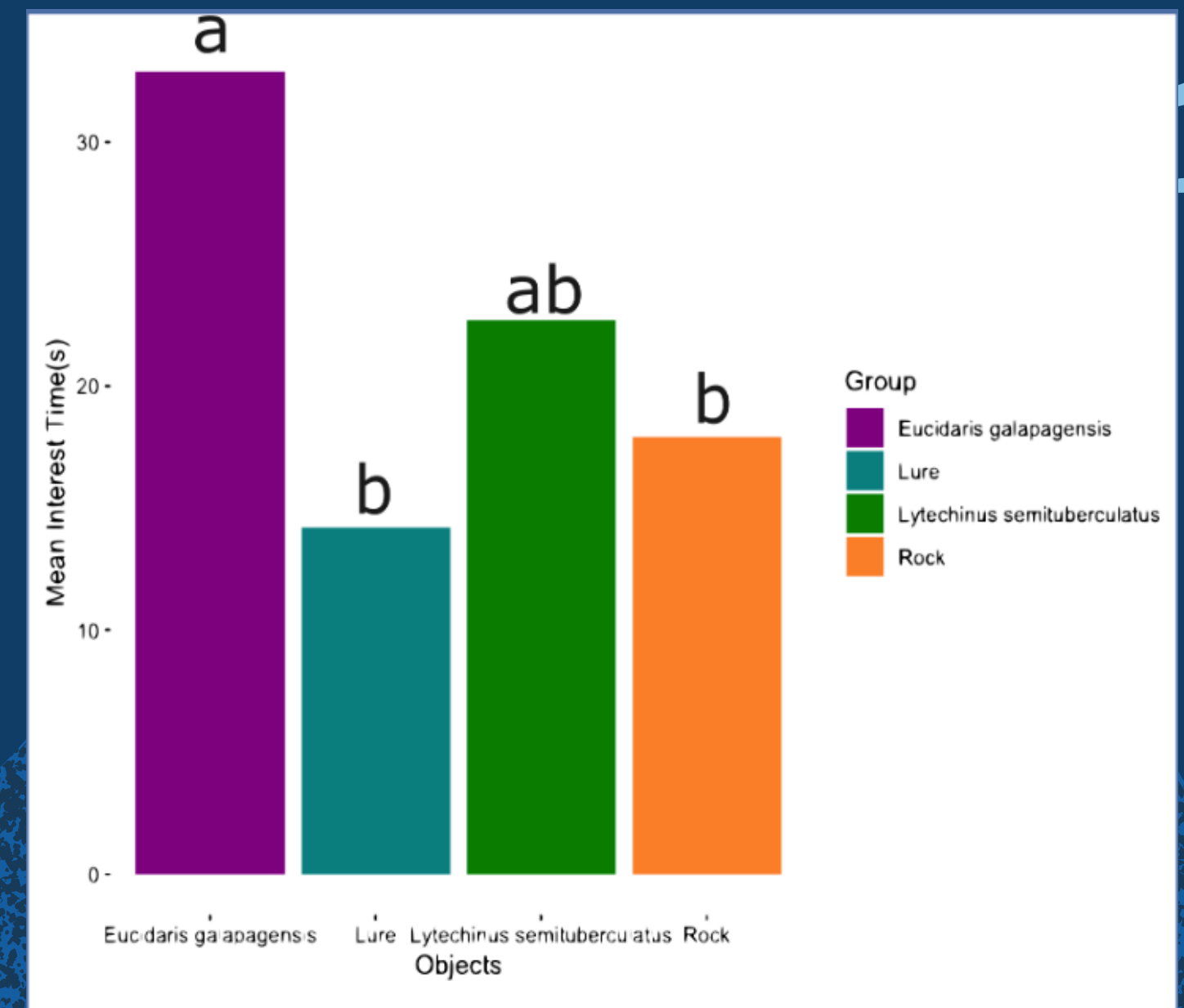
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

RESULTS

Interaction

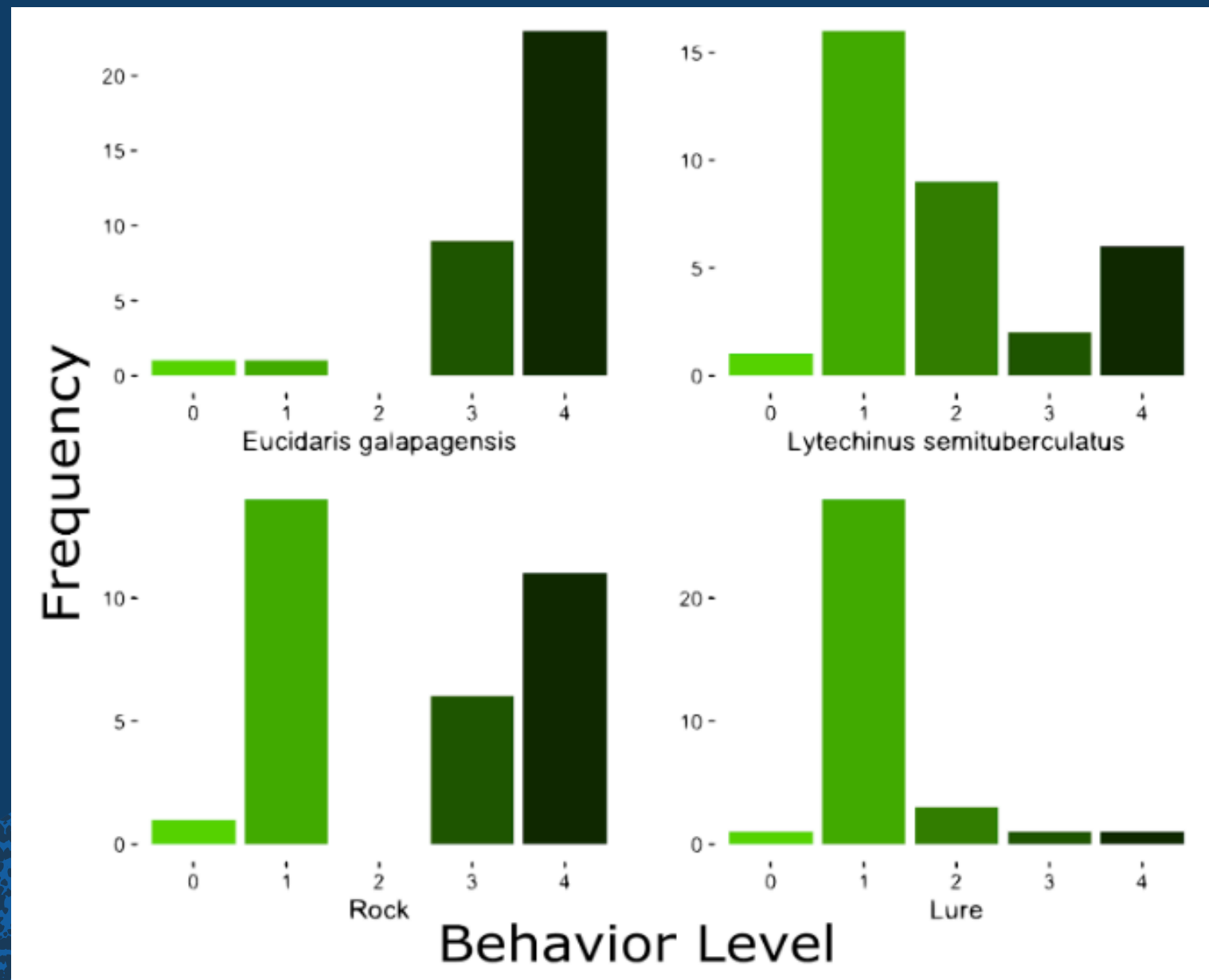


Interest

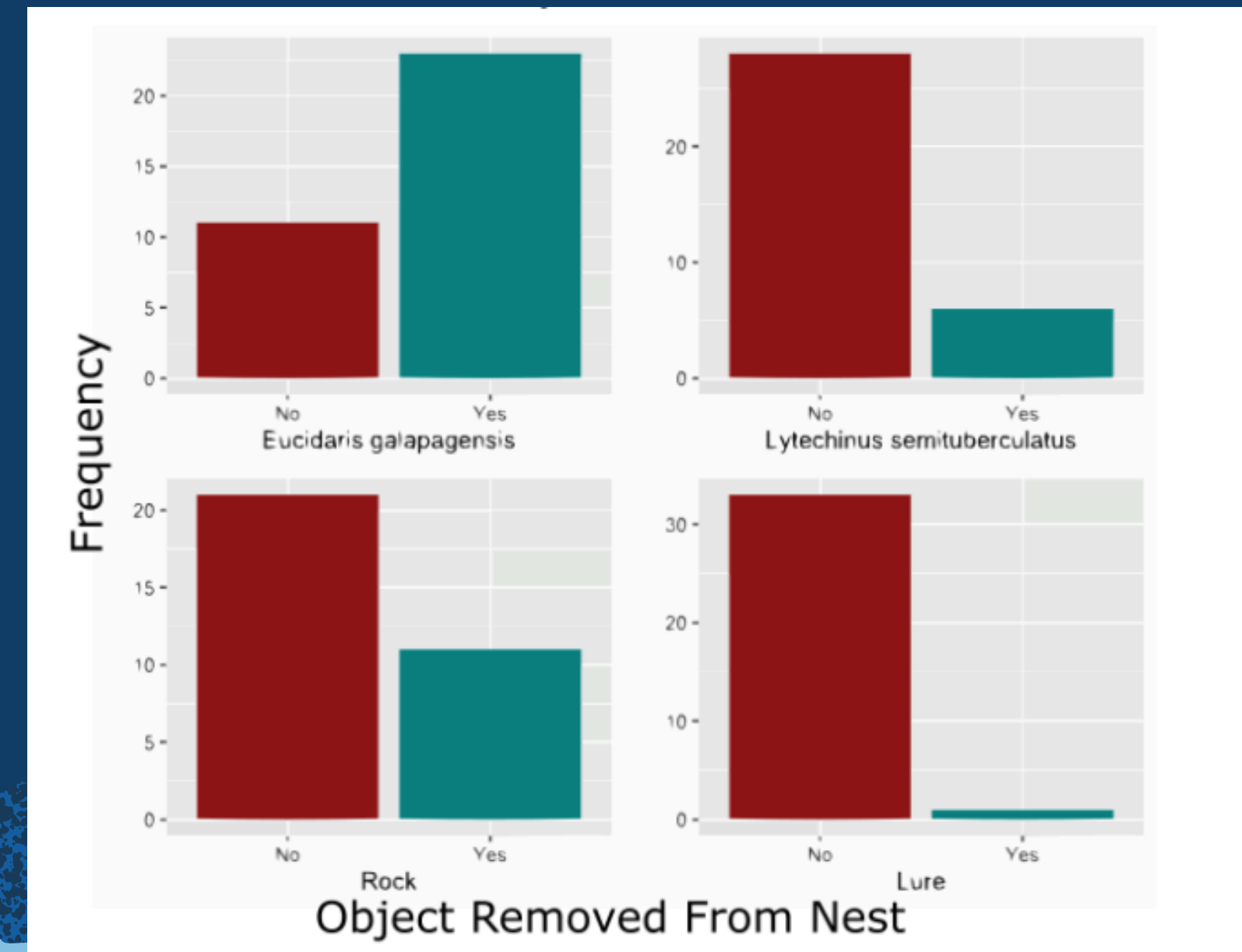


RESULTS

Behavior Level



Nest Removal



REVISITING HYPOTHESIS

- NULL HYPOTHESIS: NO SIGNIFICANT DIFFERENCE IN BEHAVIOUR
- HYPOTHESIS: SIGNIFICANT DIFFERENCE IN BEHAVIOR
- OBJECT/ZONE/NEIGHBOR HYPOTHESIS



DISCUSSION

- MEMORY
- HANDLING EFFICIENCY
- ANTHROPOLOGICAL EFFECTS



FUTURE RESEARCH

- Fake Pencil Urchin
- Different Species & Different Habitats
- Same Nest Analysis



OBSTACLES/LIMITATIONS

- Human error with timing
- Technical Difficulties
- Two Damselfish Species

QUESTIONS?



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Youtube Video!!!

<https://www.youtube.com/watch?v=8a-5iMp5hls>