A PRELIMINARY INVESTIGATION INTO ENVIRONMENTAL FACTORS IMPACTING THE MATERNAL BEHAVIOUR OF FERAL GOATS (*CAPRA AEGAGRUS HIRCUS*) AND SOAY SHEEP (*OVIS ARIES*) ON LUNDY

by

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INTRODUCTION

This short communication presents the preliminary findings of mother-offspring interactions in feral goats (*Capra aegagrus hircus*) and Soay sheep (*Ovis aries*) obtained between the hours of 09:00 and 17:00 during a week-long study on Lundy in late April – early May 2021. It should be noted that while this study was short in duration and limited in the time of day that observations were made, it still contributes to general understanding of the behaviour of two species of ungulates on Lundy.

METHODS

Feral goats and Soay sheep were found at Halfway Wall on the east side of the island (Figure 1). Soay sheep were found between Quarter Wall and Threequarter Wall. Subjects were nine feral goat pairs (mother and kid), and 46 Soay sheep pairs (mother and lamb).

An ethogram was used to capture behaviours observed during mother-offspring interactions (Table 1). Four researchers collected 36 10-minute continuous focal observations, which involved the behaviour of one pair being recorded continuously during each observational period.

Table 1. Ethogram of behaviours observed during mother-offspring interactions of feral goat (*Capra aegagrus hircus*) and Soay sheep (*Ovis aries*) pairs on Lundy.

BEHAVIOUR	TYPE	DESCRIPTION
Allogrooming	State	Any act of social grooming strictly between individuals in the maternal pair bond.
Suckling	State	The individual either receives or gives milk upon contact with the udder.
Calling between mother and offspring	Event	The individual calls for another individual strictly within their maternal pair bond.

At the start of each 10-minute observation, the following information was recorded:

- Percentage cover of vegetation, using a randomly placed 1 x 1 m quadrat.
- Terrain type, categorised as grassy plateau, grassy slope, rock, or cliff face.
- Wind speed, obtained from the Met Office.

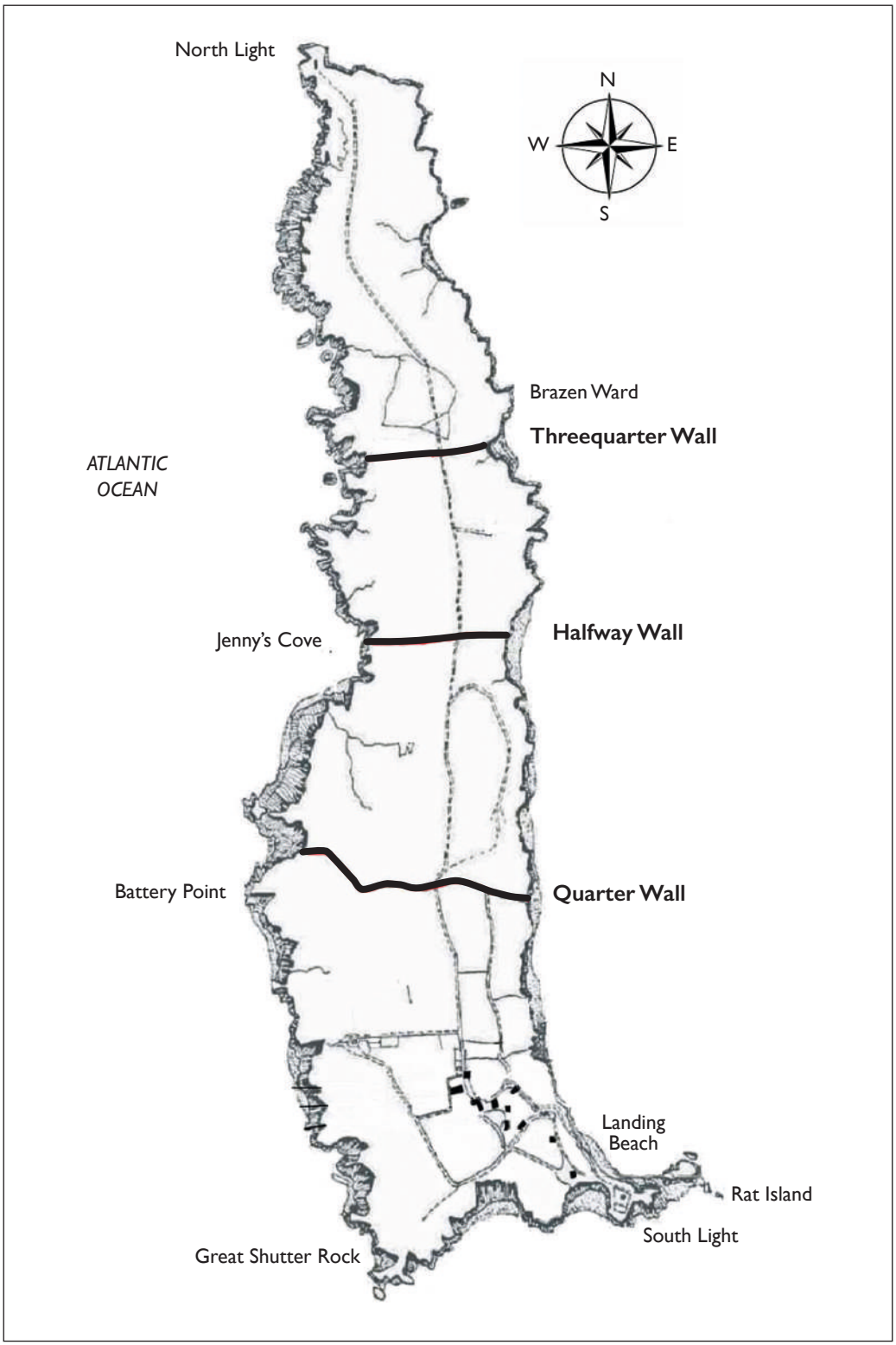

Figure 1. Map of Lundy indicating Halfway Wall, Quarter Wall, and Threequarter Wall.

- Weather type, categorised as sun, cloud, or rain.
- Time of day, categorised as morning (09:00-11:55), early afternoon (12:00-13:55) or late afternoon (14:00-17:00).

RESULTS

Three maternal behaviours were recorded (Table 2). Allogrooming and suckling were recorded in seconds, and calling was recorded in frequencies.

Table 2. Descriptive statistics including the minimum, maximum, mean, and standard deviation of the duration or frequency of observed maternal behaviours between feral goat (*Capra aegagrus hircus*) and Soay sheep (*Ovis aries*) pairs on Lundy. Behaviours were recorded within 10-minute observational periods.

BEHAVIOUR	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Allogrooming	0.000	19.000	1.667	4.523
Suckling	0.000	68.000	13.639	17.437
Calling	0.000	6.000	0.4167	1.3174

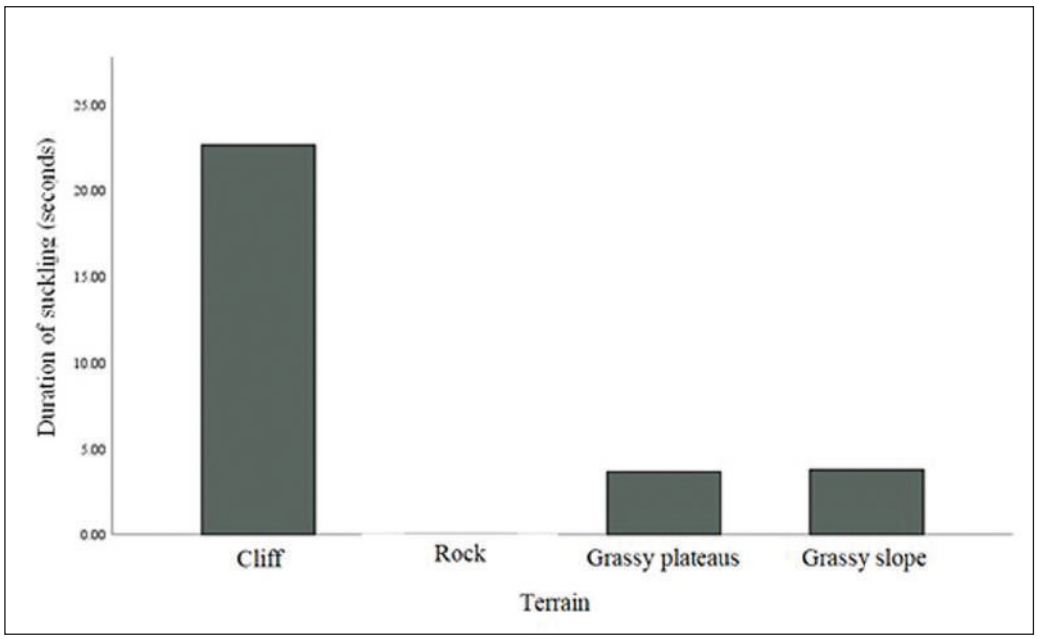

Figure 2. Relationship between terrain type and mean duration of suckling, between mother-offspring pairs of feral goats (*Capra aegagrus hircus*) and Soay sheep (*Ovis aries*) on Lundy. Suckling occurred most often on cliffs, in comparison to rock, grassy plateaus, and grassy slope terrains.

A significant relationship between terrain type and suckling was found ($P < 0.001$). Suckling occurred most often when the ungulates were on cliffs, in comparison to rocks ($P = 0.001$), grassy plateaus ($P < 0.001$), and grassy slopes ($P < 0.001$) (Figure 2). Allogrooming also had a significant relationship with terrain type ($P = 0.001$). Allogrooming occurred significantly more often when the ungulates were on grassy slopes, in comparison to cliffs ($P = 0.006$), rocks ($P = 0.027$) and grassy plateaus ($P < 0.001$).

CONCLUSION

The behaviours recorded in this study were allogrooming, sucking, and calling between mother and offspring. Significant relationships were found between terrain type and suckling, and terrain type and allogrooming. This study presents the preliminary findings of mother-offspring interactions in feral goats (*Capra aegagrus hircus*) and Soay sheep (*Ovis aries*), which can act as a starting point for further research.

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