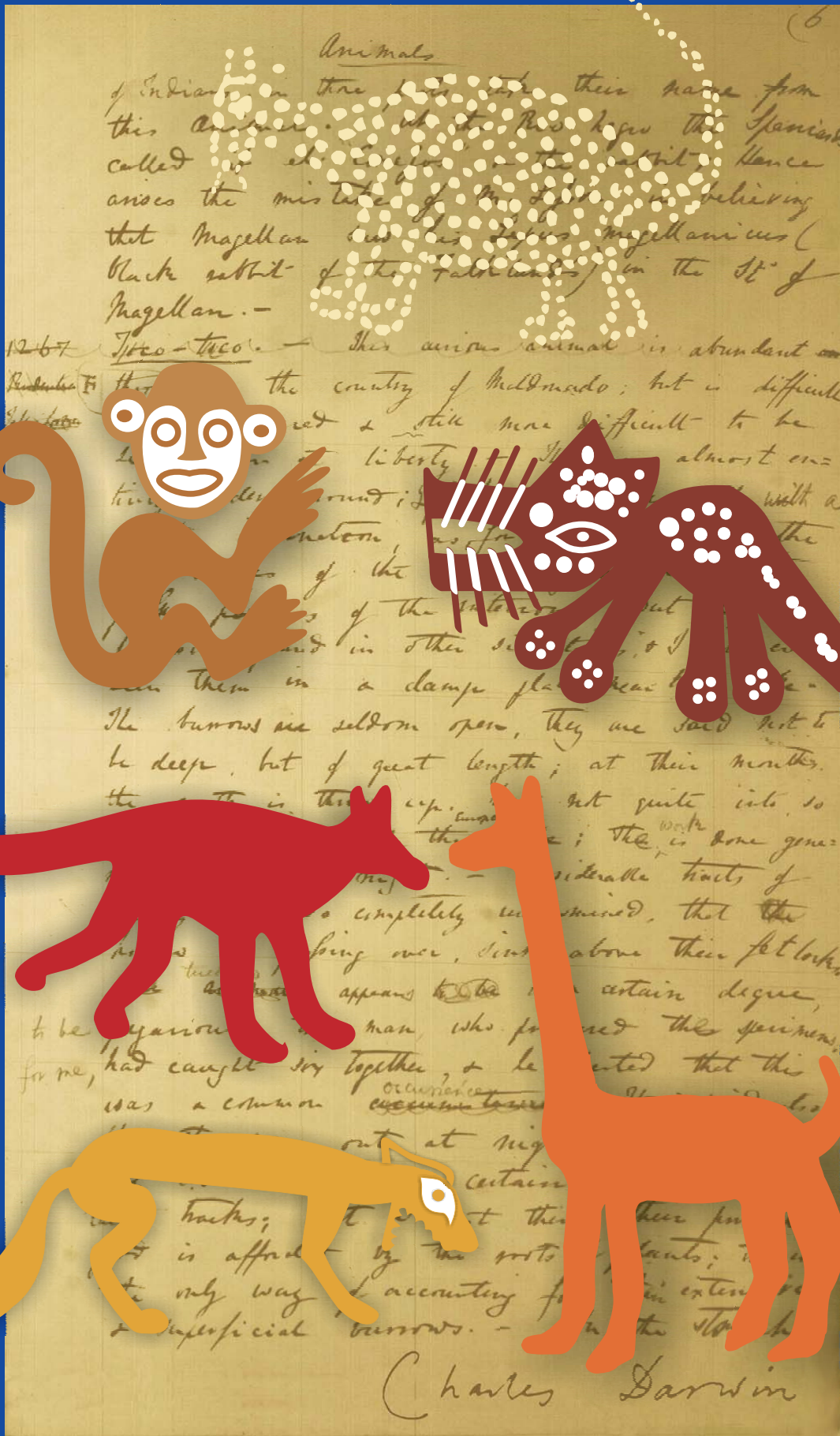


ABSTRACTS

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95 **HOW DOES PREVAILING WEATHER PREDICT RED DEER MOVEMENT RESPONSES AT DIFFERENT TEMPORAL SCALES?**

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The home range concept has long been used to increase knowledge about ecological and evolutionary aspects of animal space use, but its conceptual usefulness remains controversial. A range of factors are known to influence home range size, but how these factors operate may differ depending on which spatial and temporal scale the home range is estimated. On the temporal scale, home range sizes are expected to vary as a response to changing environments and animal needs. On the spatial scale, home range size may be determined by the distribution of habitat types within the area and their associated costs and benefits, i.e. how limiting resources are distributed relative to each other. Here, we investigate the factors determining home range size at different temporal and spatial scales using GPS telemetry data from 48 female red deer in Norway. Climatic variables had a large influence on home range size on the longest time scales (months-every two weeks). The effect of temperature varied depending on season, with home range size increasing when temperature was higher than expected during winter and the inverse relationship during summer. Home range size generally decreased as snow depth exceeded expected levels, and there was a positive relationship with precipitation during all seasons and all temporal scales. Day length, which may be used as a crude estimate of plant productivity, was negatively correlated to home range size, but only on the daily time scale. Home ranges dominated by habitats low in forage were generally larger than home ranges dominated by forage-rich habitat types. Our study shows that scale should be carefully considered when analysing home range size, as different biological processes may operate on a particular temporal and spatial scale.

96 **INSIGHTS INTO THE EVOLUTIONARY HISTORY OF SINGING MICE, GENUS *SCOTINOMYS***

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Insights into the evolutionary history of singing mice, genus *Scotinomys* Jorge Pino*; Polly Campbell; Bret Pasch; David Reed; Steven Phelps *Department of Biology, University of Florida; Gainesville, FL 32611-8525. *E-mail: jlpino@ufl.edu The genus *Scotinomys* is restricted to the Mesoamerican mountains at elevations above 1000m. Two species, *Scotinomys teguina* and *S. xerampelinus*, are formally recognized based on the last revision of the genus published more than 35 years ago (Hooper 1972). According to the literature, *S. teguina* is distributed from south-western Mexico to western Panama with a major population disjunction due to the Nicaraguan Lake depression lowlands, and *S. xerampelinus* occurs only south of the Nicaraguan Lake, both species end their distribution in western Panama. In the southern part of their range they segregate elevationally with *S. xerampelinus* found at higher elevations (above 2100m) with a few documented zones of sympatry at the lower distributional range of *S. xerampelinus*. This research examined the relationships of populations of both species throughout their distributional range by analyzing mitochondrial DNA sequences. Samples were provided by museum and field collections. Our analyses confirm haplotypes of what was thought to be *S. teguina* in populations to the north and south of the Nicaraguan Lake, showing geographic structure among populations. Results suggest an interesting demographic history with evidence of a bottleneck in the southernmost populations of *S. teguina* and a recent expansion in northern populations. Haplotypes of former *S. xerampelinus* (Costa Rica-Panama) were present in populations to the north of Lake Nicaragua, suggesting the possible presence of disjunct populations that would greatly expand the previously suggested distributional range. The mtDNA tree generated suggests other species level relationships, but nuclear data must be added to the existing dataset to test this prediction thoroughly.

97 **ISOTOPIC ECOLOGY OF TWO SYMPATRIC SOUTH AMERICAN CAMELIDS: PRELIMINARY RESULTS**

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We explored the isotopic signature ($\delta^{13}C$, $\delta^{15}N$, and δ^2D) of sympatric vicuñas *Vicuña vicugna* and guanacos *Lama guanicoe* inhabiting the high Andes of San Juan province in northwestern Argentina. We obtained bone collagen from the posterior section of the mandible from guanaco and vicuñas carcasses that spanned a wide-range of age classes (from ? 1 week- to ?11 years-old). We explored differences in $\delta^{13}C$, $\delta^{15}N$, and δ^2D values between both species. We generated bootstrapped estimates of means and 95% confidence intervals for $\delta^{13}C$, $\delta^{15}N$, and δ^2D . Values of $\delta^{13}C$ were similar for both species (vicuñas: -20.2 [-20.5 – -19.8], n = 18; guanacos: -19.8 [-20.2 – -19.4], n = 19), while values of $\delta^{15}N$ were slightly different, with vicuñas (8.1 [7.3; 8.8], n = 18) being enriched compared to guanacos (6.9 [6.3 – 7.3], n = 19). Likewise, vicuñas (-54.4 [-65.6 – -43.8], n = 15) were enriched in δ^2D relative to guanacos (-59.9 [-79.7 – -50.7], n = 20). The similarity of $\delta^{13}C$ signatures suggests substantive dietary overlap between these closely-related species. This observation corroborates previous findings obtained from stomach and pellet analyses. Because vicuñas were enriched in $\delta^{15}N$ and δ^2D , our results suggest that they (1) could be more tolerant to xeric conditions compared to guanacos and; (2) may obtain water primarily from consuming plants rather than drinking open sources of water. This is in contrast to previous work, which has described vicuñas as obligate water drinkers.

98 **LEVELS OF FLUCTUATING ASYMMETRY IN *GRAOMYS GRISEOFLAVUS* (2N=34-38) AND *GRAOMYS CENTRALIS* (2N=42) (RODENTIA: SIGMODONTINAE)**

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Developmental instability is related with stressful conditions and with high levels of fluctuating asymmetries (FA). FA comprises small