

Activity, overlap of range areas, and sharing of resting locations in the moon-toothed degu, *Octodon lunatus*

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The evolution of sociality across octodontid rodents remains puzzling. Although basal species are solitary living, the most derived octodontids studied so far are social, implying that sociality evolved recently from solitary-living ancestors. However, the social behavior of some octodontids remains anecdotal. We aimed to provide the 1st systematic data on activity, space use, and social behavior of the moon-toothed degu (*Octodon lunatus*), a derived octodontid rodent. We used live trapping and radiotelemetry to monitor patterns of aboveground activity, aboveground range areas and overlap, and use of resting locations in a coastal population in north-central Chile. Activity of *O. lunatus* was statistically similar during nighttime and daytime, implying no clear diurnal or nocturnal activity. During daytime the animals used resting locations that were associated with high shrub cover and *Pouteria splendens*. Radiocollared males and females shared resting locations on multiple occasions. There was a nonsignificant trend in degus that used same resting locations to exhibit greater range overlap than degus using different resting locations. Associations based on resting locations revealed a total of 5 social groups. Taken together, these results indicate that adult *O. lunatus* exhibit some sociality, a finding consistent with a trend in which group living is more frequent in the most derived compared with basal octodontids.

Key words: group living, nesting site, *Octodon*, range area, range overlap, space use

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Most available data and theory developed to explain how sociality (or group living) evolved in rodents come from the study of a sample of taxonomic groups, typically from African mole-rats (Bathyerigidae) and North American squirrels and marmots (Sciuridae—Ebensperger 2001). Evolutionary trends in African bathyerigids that generally support sociality and cooperation during breeding are the consequence of ecological restrictions associated to foraging and dispersal (Faulkes and Bennett 2013). Sociality measures are associated with variation in mean abundance and variation of food resources across bathyerigids (Faulkes et al. 1997). In contrast, life history may have played a greater role in ecological constraints among sciurids. In particular, sociality in sciurids seems associated with the time required by the offspring to reach sexual maturity and independence (Blumstein and Armitage 1998), implying that sociality in these rodents is driven by life-history, species-specific-level attributes. This potential difference in the importance of ecology and life history as social drivers in bathyerigids and sciurids may, to some extent, reflect a focus on single-hypothesis-driven studies. Collectively, however, these studies highlight how sociality may be driven by multiple factors (Ebensperger 2001). Clearly then, studies on the

sociality of other rodent clades are needed before strong generalizations about these traits are made.

One potentially informative group of rodents to determine the relative roles of ecological conditions and intrinsic, species-specific attributes as drivers of social evolution are the caviomorph (New World hystricognaths) rodents (e.g., guinea pigs, degus, and viscacha rats—Ebensperger 1998; Tang-Martínez 2003). Intriguingly, both ecological conditions and species-specific traits seem implied in caviomorph social evolution (Lacher 1981; Rowe and Honeycutt 2002; Trillmich et al. 2004). On the one hand, examination of data available on 6 caviomorph species shows that group size covaries with differences in the abundance of food resources, flooded areas, and predation risk within species (Maher and Burger 2011), implying a role for ecological conditions. Across species, however, variation in group size seems associated with differences in body size, activity time, and the habit of digging burrows when phylogeny is taken into account. These



associations support a role for predation risk (Ebensperger and Blumstein 2006), but also for species-specific attributes. This last alternative is further supported by comparative analyses showing a nonsignificant association between habitat conditions and sociality (Rowe and Honeycutt 2002).

Within caviomorphs, the octodontids (Octodontidae) consist of 13 currently recognized species that are ecologically and taxonomically diverse (Woods and Kilpatrick 2005). Although 3 species basal to the clade are solitary living, the most derived octodontids studied so far are social (Lacey and Ebensperger 2007), implying that sociality evolved relatively recently from solitary-living ancestors. However, data for some octodontids, including derived species, remain anecdotal (Woods and Kilpatrick 2005; Gallardo et al. 2007; Ojeda et al. 2013). Four species comprise the *Octodon* derived clade, including the degu (*O. degus*), a social and communally rearing species (Ebensperger et al. 2004; Hayes et al. 2009). In contrast, the social behavior of the other 3 species, the moon-toothed degu (*O. lunatus*), Bridges's degu (*O. bridgesi*), and the Pacific degu (*O. pacificus*), remain virtually unknown (Woods and Kilpatrick 2005). The social behavior of *O. lunatus* remains critical to determine whether ecological conditions and species-specific attributes drove the evolution of group living in the octodontids. The scarce available evidence suggests that *O. lunatus* is restricted to rocky and highly dense coastal shrub lands (Glanz and Meserve 1982; Contreras et al. 1987), does not build underground burrows, and is suspected to be nocturnally active (Ocampo-Garcés et al. 2003). These ecological features of *O. lunatus* contrast with those of *O. degus*, a species that forages in more open, unprotected areas during daytime, and actively builds underground burrows.

Habitat openness has been shown to predict sociality in relatively large terrestrial and marine mammals (Brashares et al. 2000; Gygax 2002; Caro et al. 2004). However, the use of unprotected habitat in terms of overhead cover is not strongly associated with social living across species of caviomorph rodents (Ebensperger and Blumstein 2006). Instead, social behavior in these rodents seems associated with diurnality, as well as the habit of actively digging burrows, with the exception of capybaras (Herrera et al. 2011). Thus, the extent to which *O. lunatus* exhibits sociality and remains active during daytime may shed light on the roles of habitat cover, aboveground activity, and burrow digging in shaping the evolution of group living across the octodontids. In particular, the apparently nocturnal activity, the absence of active burrow digging, and the use of highly dense (with considerable overhead cover) habitat predict a relatively low extent of sociality in *O. lunatus*. Based on these considerations, we predict that *O. lunatus* exhibits minimal range overlap and minimal sharing of nest sites, 2 measures of sociality in rodents.

MATERIALS AND METHODS

Study population.—Observations were made near the coastal town of Los Molles, Chile ($32^{\circ}13'S$, $71^{\circ}31'W$; Fig. 1) in 2010

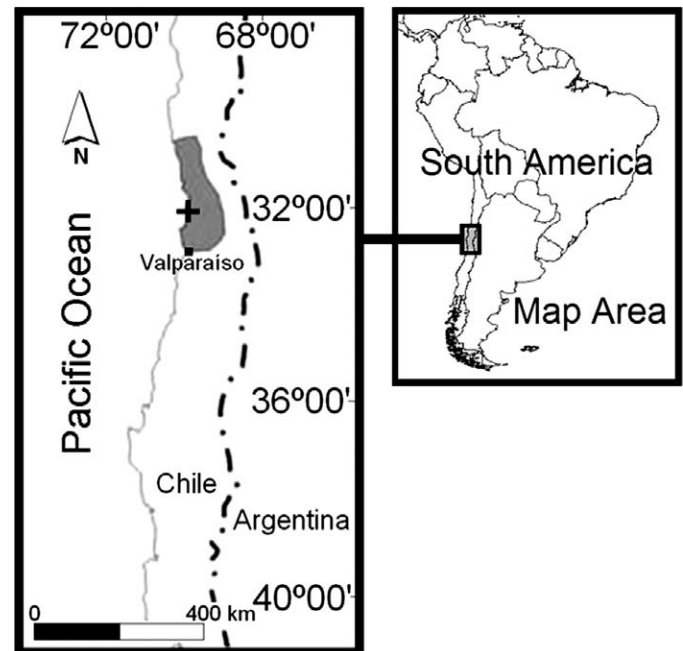


FIG. 1.—Known distribution of moon-toothed degu (*Octodon lunatus*; gray shading) according to Contreras et al. (1987), Mares and Ojeda (1982), Gallardo et al. (2007), and Ojeda et al. (2013); the cross symbol indicates the location of the study site near Los Molles, Chile ($32^{\circ}14'S$, $71^{\circ}33'W$, elevation = 33.58 m).

and 2011. Los Molles is a semiarid, Mediterranean location where annual rainfall does not exceed 300 mm and the ambient temperature averages $14.4^{\circ}C$ (Muñoz et al. 1996; Luebert and Plissock 2006). The habitat used by *O. lunatus* is described as complex, with patches of shrubs, grasses, and rocks (Luebert and Plissock 2006). During 2010 and 2011 we used 5 randomly placed 50-m transects and determined that shrub cover averaged $54\% \pm SE 1.50\%$ and grass cover averaged $41\% \pm 1.36\%$. The extent of bare ground was low and averaged $3\% \pm 0.49\%$ and slab rock areas averaged $2\% \pm 0.24\%$. The dominant plant species were *Pouteria splendens* (lúcumo), *Bahia ambrosioides* (manzanilla cimarrona), and *Lithraea caustica* (litre). The total area examined at Los Molles was nearly 15 ha and did not vary during the years of our study.

Initial trapping and radiotagging.—Animal trapping and handling followed the guidelines of the American Society of Mammalogists (Sikes et al. 2011). We used 13 days in 2010 and 14 days in 2011 to trap and radiocollar adult-sized (assessed from body mass) male and female *O. lunatus*. During the study period, the total number of traps used in 2010 and 2011 was 232 and 194, respectively. Animals were captured using $14 \times 14 \times 40$ -cm Tomahawk traps (model 201; Tomahawk Live Trap Company, Hazelhurst, Wisconsin). Based on previous information, we placed traps inside patches with high shrub cover and baited them with rolled oats, fruity cereals, and sunflower seeds. We shifted traps to adjacent areas (with similarly high cover of shrubs) if no animals were trapped during 3 consecutive days. Traps were opened near sunset (2000 h) and closed during early morning

(0600 h). For each capture, we recorded sex, body mass, and reproductive condition (e.g., whether females were perforate, pregnant, or lactating), and each animal was assigned a unique identification number. Upon 1st capture, each animal was marked with ear tags (Monel 1005-1; National Band and Tag Co., Newport, Kentucky). We used 2 ear tags (with identical identification codes) because this minimized the probability that an animal would lose both tags during the study period. In addition, all adult-sized individuals were fitted with a radiocollar weighing 7–9 g (RI-2D; Holohil Systems Limited, Carp, Ontario, Canada; SOM-2190A and BR radiocollars; AVM Instrument Co., Colfax, California) with unique pulse frequencies. At the end of our study all radiocollared animals were recaptured and radiocollars were removed.

Temporal pattern of activity.—Moon-toothed degus are reportedly nocturnal; however, this statement is based on laboratory observations of a single individual (Ocampo-Garcés et al. 2003). Thus, we recorded locations of all radiocollared animals for a total of 3 days and 4 nights in 2010 and 3 days and 4 nights in 2011. We recorded locations of collared degus each hour between 2100 and 0700 h (nighttime) and between 0700 and 2100 h (daytime). Sunrise occurred at approximately 0630 h, whereas sunset occurred around 2030 h. Daily patterns of activity were monitored using triangulation (Kenward 2001). We used 2 LA 12-Q receivers, each connected to a null peak antenna system (AVM Instrument Co.). Every null peak system had four 7-element yagi antennas. Distance between antenna stations was about 120 m. To ensure independence of data points (Swihart and Slade 1985; Kenward 1987), intervals between fixes were approximately 1 h. Every hour, two 2-observer teams simultaneously recorded bearings of every radiocollared subject ($\pm 5^\circ$) using the same previously defined subject sequence. Bearings from both antenna stations were then transformed into x–y locations with the software Locate II (Nams 1990). Data points for each degu were then mapped using the 95% minimum convex polygon algorithm of the software Ranges 6 (Kenward et al. 2003).

Determination of social groups.—The main criterion used to assign moon-toothed degus to social groups was the sharing of resting locations (i.e., putative nest places). Given that activity seemed lower during afternoon hours (see “Results”; Fig. 2), the sharing of resting locations was inferred from trapping and telemetry at this time. We defined resting location as areas of 4–9 m² covered by shrub vegetation, with signs of *O. lunatus* (i.e., feces or dust-bathing spots) and where radiocollared individuals were repeatedly found during daytime telemetry and daytime trapping. The total number of resting locations trapped per year at Los Molles was 8 in 2010 and 11 in 2011. These areas were trapped for 13 consecutive days during late November–early December 2010 and 14 consecutive days during November 2011. Ten traps (Tomahawk model 201; Tomahawk Live Trap Company) were used per day at each resting location. Typically, traps were placed at locations with putative evidence of *O. lunatus*, including runways and dust-

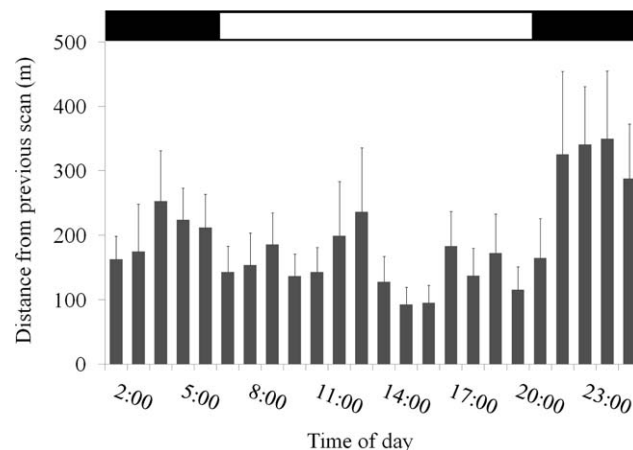


FIG. 2.—Mean (± 1 SE) distance moved (m) since previous scan of moon-toothed degus (*Octodon lunatus*) monitored every 1 h for 6 days and 8 nights at Los Molles, Chile. A total of 8 adult degus were recorded in 2010 and 12 more degus were studied in 2011. Black bars at the top of graphs indicate night hours.

bathing spots. Traps were baited with rolled oats, fruity cereals, and sunflower seeds, opened at sunset (2000 h), and closed in the early morning (0600 h).

During 1700–1800 h, all radiocollared animals were radio-tracked to their putative resting locations. We determined resting locations with an LA 12-Q receiver (for radiocollars tuned to 150.000–151.999 MHz frequency; AVM Instrument Co., Colfax, California) and a handheld, 3-element yagi antenna (AVM instrument Co., Colfax, California). On average, 2 observers required 40 min to track all radiocollared animals. Once located, the position of each animal was marked with flagging material coded for individual animals. Each radiofix location was then referenced twice with a Garmin portable global positioning system (Garmin International Inc., Olathe, Kansas). The precision of global positioning system readings was always within 5 m.

The determination of group composition required the compilation of a symmetric similarity matrix of pairwise association of the resting locations of all adult moon-toothed degus during trapping and telemetry (Whitehead 2008). We determined the association (overlap) between any 2 individuals by dividing the number of evenings that these individuals were captured at or tracked with telemetry to the same nesting area by the number of evenings that both individuals were trapped or tracked with telemetry on the same day (Ebensperger et al. 2004). To determine social group composition, we conducted hierarchical cluster analysis of the association matrix in SOCPROG software (Whitehead 2009).

To determine whether individuals assigned to the same resting location also were socially cohesive when active, we monitored patterns of space use by radiocollared animals. In particular, we examined the prediction that spatial overlap of range areas between individuals assigned to the same resting location would be larger than overlap between individuals assigned to different resting locations. The range area of each radiocollared degu was determined from locations recorded

through triangulation during nighttime. Data points from each individual were mapped using the 95% minimum convex polygon algorithm in Ranges 6 (Kenward et al. 2003). Pairwise estimates of the percent overlap between polygons for different females also were calculated using Ranges 6.

Habitat and resting locations.—Resting locations (i.e., putative nest sites) always were located near the base of shrubs and under the cover of dominant shrubs. Thus, for every resting location (recorded to have been used by at least 1 radiocollared degu), we established 2 transects in a crossed design and where each resting site corresponded to the intersection point; these transects had north–south and east–west orientations. We estimated the amount of overhead shrub cover and recorded the maximum vegetation height (in m), covering 1 m² of ground area. Soil penetrability as an index of soil hardness (Ebensperger et al. 2012) was recorded at 1, 3, and 5 m from the intersection point in the north–south and east–west cardinal directions. These measures were taken with the use of a handheld soil compaction meter (Lang Penetrometer Inc., Gulf Shores, Alabama), and units were transformed to kilopascals. These measures were averaged per resting location before further analysis.

Data analyses.—We calculated distance between successive scans as a measure of aboveground activity of the moon-toothed degu. For each animal we calculated distance traveled (in m) between each pair of successive scans. The same individuals were monitored throughout consecutive days and nights within each study year. As a result, locations recorded at 24-h intervals were not independent of one another. Consequently, and for statistical analyses, we divided the entire data collection period into 3 day and 4 night cycles, defined on the basis of sunrise and sunset at each study site. For the daytime portion of each activity cycle, we calculated the mean distance travelled for each radiocollared individual within each study year. We used a similar approach for the nighttime portion of the activity cycle. As a result, each radiocollared individual contributed 2 dependent data points to our analysis of activity. We used repeated-measures analysis of variance to examine the effect of activity time (day versus night) on individual activity of females. Because activity of individuals from the same resting locations may not be statistically independent, the effect of group identification was included in a preliminary analysis. Given that this analysis revealed a statistically significant effect of group identification (not reported), we conducted a subsequent analysis in which activity of animals from the same resting locations was averaged. Only females were included in this analysis because only a single male was radiocollared during 2010. For comparative purposes, we also examined how male activity differed between daytime and nighttime during 2011.

We compared the mean size (in m²) of range areas and percent range overlap by male and female moon-toothed degus with Mann–Whitney *U*-tests. We used the relationship between home-range size and the number of observation days to determine sampling saturation (Quirici et al. 2010). Then we used Wilcoxon matched-pair tests to compare percent overlap

in range areas of individuals assigned to the same resting location associations and percent overlap that these individuals had with individuals assigned to different associations in 2011.

We used Spearman rank correlation analysis to examine potential associations between the number of degus that used each resting location and plant cover, maximum vegetation height, and soil hardness. We used the Dunn–Sidak correction to prevent inflation of type I statistical error during these explorative analyses.

All statistical analyses were calculated using Statistica 7.0 (StatSoft Inc. 1984–2004), Prism 5.0 (GraphPad Software Inc. 1992–2007), and Minitab 14.2 (Minitab Inc. 2005). Data are reported as mean \pm SE. All tests were 2-tailed, and unless stated differently, we considered a significant difference at $P < 0.05$.

RESULTS

Characteristics of radiocollared animals and trapping effort.—A total of 44 adults (27 females and 17 males) and 13 juveniles (7 females and 6 males) were captured or recaptured during this study. Overall, the number of captures–recaptures per degu averaged 3.23 ± 0.70 during 2010 and 5.48 ± 0.61 during 2011. Eleven of the females trapped were lactating, confirming breeding activity. A total of 20 adult-sized individuals (2010: 7 females 169 ± 18 g, and 1 male 128 g; 2011: 8 females 169 ± 8 g, and 4 males 187 ± 9 g) were fitted with radiocollars.

Temporal pattern of activity.—Aboveground activity recorded as distance moved between radioscan was variable through time of day or night (Fig. 2). Although female activity recorded during nighttime ($\bar{X} \pm SE = 216 \pm 90$ m, range: 4–1,571 m, $n = 12$) was 1.6 times greater than activity recorded during daytime ($\bar{X} \pm SE = 136 \pm 67$ m, range: 4–1,786 m, $n = 12$), this difference was not statistically significant ($F_{1,1} = 1.69$, $P = 0.223$). Likewise, the difference in male activity between nighttime ($\bar{X} \pm SE = 374 \pm 200$ m, range: 20–1,521 m, $n = 4$) and daytime ($\bar{X} \pm SE = 209 \pm 122$ m, range: 12–888 m, $n = 4$) recorded in 2011 was not statistically significant ($F_{3,3} = 3.01$, $P = 0.410$).

Resting locations and social groups.—We monitored 7 females and 1 male, and 8 females and 4 males during 2010 and 2011, respectively. A total of 24 radiotelemetry scan sessions (2010: 10 sessions; 2011: 14 sessions) were completed during daylight hours and used to assign radiotagged subjects to resting locations. Daytime trapping of resting locations and daytime telemetry revealed that animals used from 1 to 3 different resting locations ($\bar{X} \pm SE = 1.8 \pm 0.2$; number of the used nests = 13), namely locations where an animal was found repeatedly during 2 or more scans.

During 2010 we recorded 2 females using the same resting place during the day on only 2 occasions. In contrast, during 2011 we recorded 45 occasions in which animals shared resting locations. Of these, 27 observations involved male–female pairs, 12 were female–female pairs, 1 involved 2 male–2 female associations, 4 involved 1 male–2 female associations,

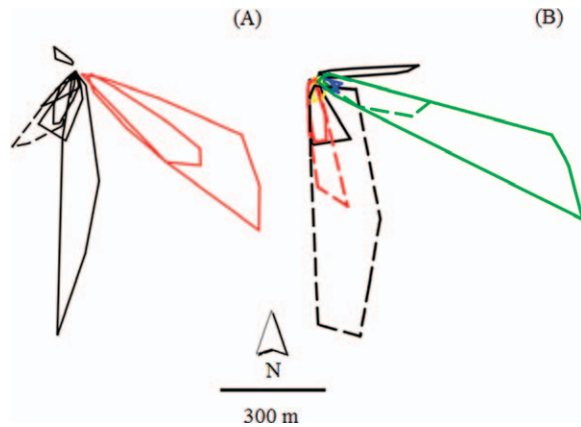


FIG. 3.—Range areas (95% minimum convex polygons) of the moon-toothed degu (*Octodon lunatus*) recorded during a) 2010 ($n=8$) and b) 2011 ($n=12$). Dashed lines represent adult males. Identical colors are used to label individuals assigned to the same social groups based on daytime telemetry and resting location trapping. The arrow indicates geographic north.

and 1 involved 1 male–3 female associations. Provided that resting location associations represent truly social groups, we identified 1 social group in 2010 and 4 groups in 2011. Social groups ranged from 2 to 4 adults throughout the study. Groups contained 1–3 females and 1 or 2 males.

Range areas and overlap.—During 2010 and 2011, male range areas ($237,360 \pm 158,780 \text{ m}^2$, $n=5$) were 2.4 times larger than female range areas ($100,833 \pm 47,203 \text{ m}^2$, $n=15$), although this difference was not statistically significant (Mann–Whitney U -test, $U=23.00$, $P=0.223$; Fig. 3). When only radiocollared females were considered, the size of 95% minimum convex polygons did not differ between years (2010: $85,743 \pm 36,909 \text{ m}^2$, $n=7$; 2011: $114,038 \pm 90,546 \text{ m}^2$, $n=8$; Mann–Whitney U -test, $U=22.00$, $P=0.536$). Sampling saturation was recorded upon 3 days of observation in 2010 and 2011. These findings suggested that range areas recorded during the 2 years of study were appropriate estimates of the true range areas of *O. lunatus*.

Range overlap among males with any other radiocollared subject ($20.68\% \pm 14.02\%$) was similar to that recorded in females ($14.69\% \pm 6.84\%$; Mann–Whitney U -test, $U=5,382$, $P=0.085$). During 2011, a marginally significant difference (Wilcoxon matched-pairs test, $Z=1.82$, $P=0.068$; Fig. 4) indicated that overlap between range areas of degus assigned to the same resting locations ($61.9\% \pm 7.3\%$) tended to be greater than overlap between range areas of degus assigned to different resting locations (22.5 ± 1.2 , $n=4$ social groups).

Characterization of resting locations.—A total of 13 resting locations (putative nests) were identified during 2010 and 2011. Plant cover across all resting locations averaged $98.5\% \pm 1.0\%$, $n=13$). Maximum shrub height averaged $3.5 \pm 0.2 \text{ m}$ ($n=13$), and soil hardness averaged $2,679.4 \pm 56.4 \text{ kPa}$ ($n=13$). There was not a statistically significant association between the number of degus that used each resting location and plant cover ($r_s=0.000$, $P=1.000$), maximum vegetation

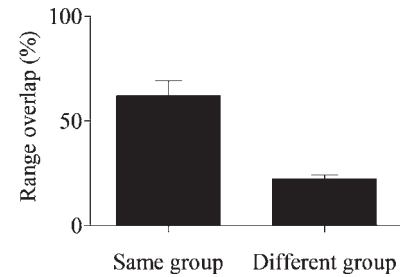


FIG. 4.—Mean (\pm SE) overlap in range areas between degus (*Octodon lunatus*) assigned to the same or different social groups.

height ($r_s=0.140$, $P=0.647$), or soil hardness ($r_s=0.383$, $P=0.196$).

Lúcumo (*P. splendens*) was present in 9 (60%) of 13 resting locations, with a height that averaged $3.6 \pm 0.2 \text{ m}$ ($n=9$). Resting locations included other plant species, such as *Puya chilensis* and *Escallonia pulverulenta*. Rock outcroppings were present in 2 of 13 resting locations.

DISCUSSION

Our results do not support previous claims describing activity of *O. lunatus* as exclusively nocturnal (Díaz 1999; Ocampo-Garcés et al. 2003; Begall 2005; Muñoz-Pedrerros et al. 2010). In contrast, these results support other studies that suggest that *O. lunatus* is active during daytime and nighttime (Torres-Contreras et al. 1994; Jaksic et al. 1997; Muñoz-Pedrerros 2000). A more continuous pattern of activity throughout the day and night in these rodents may be the consequence of relatively stable microclimatic conditions. Stable conditions may result from relatively high shrub cover (e.g., Jensen et al. 2003), and from the relatively low thermal amplitude due to ocean influence.

Relative to the range areas of similar-sized *O. degus* (Hayes et al. 2007), *O. lunatus* exhibited extensive range areas, where polygons generally matched the spatial distribution of shrub patches (Fig. 3). Although several factors may contribute to determining range areas in rodents (e.g., Getz et al. 2005), overhead plant cover is likely to be the ultimate, major factor in moon-toothed degus. Relatively high and continuous shrub cover conditions likely provide *O. lunatus* with cover from visual predators, stable microclimate, preferred food, and appropriate nesting sites. Spatial and temporal variation in these resources (e.g., food) or conditions should be examined to determine how these predict the size of range areas in these rodents.

Both the sharing of resting locations and overlap of range areas indicated these animals are social to some extent. Pending studies aimed to confirm that sharing of resting locations and range areas translate into communal nesting and other affiliative aspects of group-living, social behavior of *O. lunatus* seems intermediate between that of solitary (Mares et al. 1997; Ebensperger et al. 2008) and highly social (Ebensperger et al. 2004; Lacey and Ebensperger 2007) octodontids studied so far. These findings represent an

important piece of information in the evolution of sociality in octodontids, because they confirm the generally social nature of the most derived octodontids compared with basal species studied so far. Thus, differences in sociality across octodontids are consistent with the pattern of social living in these animals evolving relatively recently from solitary-living ancestors.

The amount of plant overhead cover has been linked to sociality, with relatively large terrestrial mammals generally being social in open habitats (Brashares et al. 2000; Caro et al. 2004). Group living would confer survival benefits in open, more risky environments through several mechanisms, including dilution or improved predator detection (Ebensperger 2001; Krause and Ruxton 2002). In contrast, social living across species of caviomorph rodents seems more associated with diurnal activity and the habit of actively digging burrows (Ebensperger and Blumstein 2006). The observation that social *O. lunatus* uses habitats with relatively high plant overhead cover remains inconsistent with the hypothesis that predation risk drives social behavior in this species. Subsequent comparative analyses are needed to determine the extent to which this mismatch between the social phenotype and ecological conditions in terms of predation risk represents phylogenetic inertia.

Caviomorph rodents are known to exhibit intraspecific differences in social systems that generally correlate with variation in ecology (Maher and Burger 2011). Subsequent studies are then needed to determine the extent to which social behavior in *O. lunatus* may vary with density or other ecological conditions, as shown in other rodents (Wolff 1994; Randall et al. 2005). In particular, the social behavior of *O. lunatus* at Los Molles may be compared with that of *O. lunatus* from Lago Peñuelas National Reserve, and where abundance of this species seems lower based on the number of captures reported there (Muñoz-Pedreros et al. 2010).

In summary, our study yields insights into previously unknown aspects of behavior, including general activity, spatial ecology, and social behavior of *O. lunatus*. These rodents exhibit locomotor activity during daytime and nighttime and use 1 or more resting locations associated with high shrub cover. The sharing of resting locations and overlap of range areas support the idea that these rodents are to some extent social compared with solitary and highly social octodontids.

RESUMEN

Nuestro conocimiento sobre la evolución del comportamiento social en roedores octodóntidos es aún fragmentario. La información disponible indica que las especies filogenéticamente basales son solitarias, mientras que las más derivadas tienden a ser sociales. Sin embargo, la información sobre la estructura social disponible para varias especies es anecdótica, lo cual dificulta el establecimiento de conclusiones robustas sobre la evolución del comportamiento social en este clado. Este es el primer estudio que cuantifica la actividad, uso del espacio, y comportamiento social del degú costino (*Octodon lunatus*), una especie derivada de octodóntido.

Durante noviembre y diciembre de 2010 y 2011 se utilizaron métodos de captura-recaptura y telemetría para cuantificar el patrón diario de actividad superficial, ámbitos de hogar, solapamientos entre ámbitos de hogar, y uso compartido de parches de descanso y nidificación en una población costera localizada en el centro-norte de Chile. La actividad de *O. lunatus*, medida como desplazamientos individuales entre localizaciones consecutivas, mostró una tendencia estadísticamente no significativa a ser mayor en horas de la noche. Durante el día los animales usaron 1 a 3 sitios de descanso y anidamiento asociados con una alta cobertura arbustiva, donde *Pouteria splendens* (lúcumo) fue la especie dominante. Machos y hembras compartieron estos sitios de descanso en múltiples ocasiones. El solapamiento entre los ámbitos de hogar tendió a ser mayor en animales que además compartieron sitios de descanso comparado con animales que no compartieron estos sitios. En base al uso compartido de refugios se identificó 1 grupo social en 2010 y 4 grupos en 2011. La composición de estos grupos fue de 1 a 3 hembras adultas y de 1 a 2 machos adultos (2 a 4 adultos en total). Globalmente, los resultados indicaron que *O. lunatus* muestra algún grado de sociabilidad, observación que apoya una tendencia en la cual el comportamiento social es más frecuente en especies filogenéticamente derivadas de octodóntidos.

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