

COMUNICACIONES

Activity pattern of *Procyon cancrivorus* (Carnivora: Procyonidae) in Argentina

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**Resumen:** Se estimaron los niveles de actividad del mayuato (*Procyon cancrivorus*) mediante el conteo de huellas en cuatro asociaciones vegetales de la Reserva Ecológica El Bagual, en Formosa, Argentina (dic. 1989 a nov. 1990). Se aplicó un índice de actividad determinado por el número de huellas contadas, número de círculos de radio fijo con huellas y días disponibles de estos círculos, totalizando así 56 áreas de muestreos de 3m<sup>2</sup> de superficie fija leídas repetitivamente a lo largo de un año. Las varianzas de los cuatro ambientes muestreados resultaron insignificativas y análisis posteriores indicaron una preferencia marcada por el bosque en formación. Un patrón estacional generalizado es dado a conocer con picos de actividad durante primavera y otoño en acuerdo con la actividad registrada para la especie en un estudio previo.

**Key words:** raccoon, activity, habitat selection, track counts.

No information on seasonal activity levels and habitat use for crab-eating raccoons (*Procyon cancrivorus*) has been reported in Argentina. Olrog and Lucero (1981) informed that this nocturnal species is locally abundant in forests and savannas near water bodies. This raccoon ranges from Central America to north-central Argentina (Ever 1985) and Cabrera and Yepes (1940) found that the procyonid is a closed-forest dweller with marked omnivorous and arboreal habits.

In El Bagual Ecological Reserve, located in Argentina, *P. cancrivorus* abounds in the protected area and has been reported for arbustive savannas, flooded grasslands ("bañados"), fluvial areas and forests (Yanosky 1991). This procyonid is not considered a "problem species" and this management conflicts are not expected in the future (Yanosky 1989).

A night survey carried out at El Bagual in 1987-1988 determined that this raccoon was relatively abundant in "bañados", with a highest density of 0.023 ind./ha and peaks of activity in July, August and October. Seasonally, this raccoon is common in "bañados" during winter and rarely recorded in the summer (Yanosky and Mercolli 1989).

The estimation of wild-animal populations parameters by sign counts has been broadly used, especially in deer, and is extensively discussed when used for estimating densities (Caughley 1977, Davis and Winstead 1980, Tallería 1986). This is not the case here where track counts are used for estimating habitat selection and activity levels. Ockenfels and Bissonette (1983) developed a track plot system to monitor these parameters in white-tailed deer. This method was applied on El Bagual to study habitat preferences in four woody habitats, as well as monthly and seasonal activity levels. It was assumed that track counts are related to general levels of activity.

El Bagual Ecological Reserve is a 3463 ha protected area located in northeastern Argentina (26° 10' 53" S, 58° 56' 39" W) within the humid Chaco Biogeographical region. The Chaco can be defined as an ecosystem of grasslands and forests, whose equilibrium is maintained by floods and fires as natural events (Morello and Adamoli 1974). El Bagual is comprised of "bañados" with sparse woods of different plant community complexities. Further information on vegetational types and key plant species are given in Mercolli and Yanosky (1991).

A study site was chosen in each plant community representing four major vegetational types within the reserve. Activity levels of crab-eating raccoons were estimated by track counts taken from a plot system. Fourteen plots per site were allocated 100 m far from the next one. Plots (3m<sup>2</sup>) were established by means of an axe, then raked up to 10 cm deep and swept with a metallic broom for track printing ease. A simple paw impression was considered as one track and all the plots (56) were read at weekly intervals between December 1989 and November 1990. After the weekly reading, the plot was left for a next sampling period by sweeping it again.

Data collected by plot included a count for the total number of raccoon tracks. An activity index (number of tracks/number of days/number of plot with tracks) was calculated according to the Ockenfels and Bissonette index (1983), here called USE and based on the number of tracks counted within plots. These values were tested for homogeneity of variances with Bartlett's test and mean significant differences by ANOVA.

Forty-four readings (2471 sample plots) were conducted and each cover type received the same number of readings. Only 85 plots had tracks, meaning a 3.4 % of occupancy with a total of 507 tracks counted in a period of 981 days for the four habitat types.

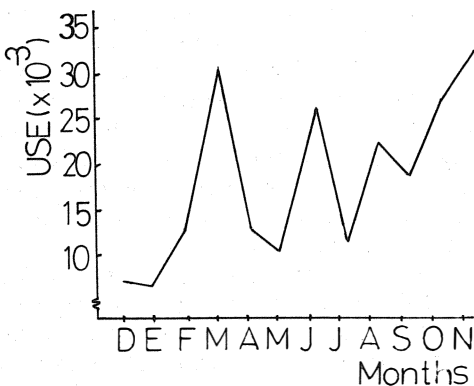


Fig. 1. General pattern of activity for the crab-eating raccoon at El Bagual Ecological Reserve, Argentina.

Data gathered were analysed for differences among habitat use levels. Variances were not homogeneous in the four cover types ( $X^2v = 25.22$ ;  $dF = 3$ ;  $p < 0.001$ ) but it was assumed that early-seral-staged forests with higher mean

values and broader variances could be preferred habitats. To test this hypothesis, data were gathered for the three remaining habitat without considering the early-seral-staged forest and it was concluded that the crab-eating-raccoon prefers this cover type of early seral stage forests with no preference in the three other cover types (grasslands, high and low forests) ( $X^2v = 8.71$ ;  $dF =$ ;  $p > 0.01$ ).

Monthly differences in USE showed no homogeneous variances ( $X^2v = 28.37$ ;  $dF = 11$ ;  $p > 0.01$ ). The general activity pattern for the whole period (Fig.1) shows a fluctuating USE index along the year with peaks in March, June, August and November. This lead to an analysis of seasonal activity levels for which variances were homogeneous ( $X^2v = 7.13$ ;  $dF = 3$ ;  $p > 0.01$ ) and means were significantly different ( $F = 9.16$ ;  $dF = 3, 12$ ;  $p < 0.5$ ). The raccoon is less active during summer and winter, and activity increases in autumn and spring (Fig. 2).

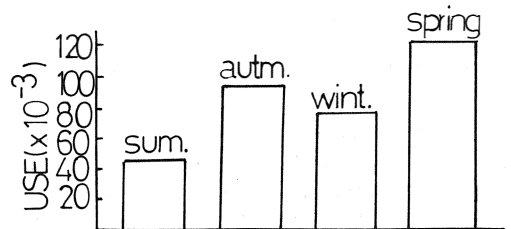


Fig. 2. Seasonal average values of USE see text for the crab-eating raccoon at El Bagual Ecological Reserve, Argentina.

In general, this species prefers early seral-staged forests, although it is present in the other habitat types in low numbers. The population shows a general activity pattern with lower recordings in summer and higher in spring which agrees with data obtained for the "bañado" (Yanosky and Mercolli 1989) where the species is also poorly presented during summer, but common in winter. This is the first report about seasonal activity levels and habitat use for the species in its southern range, which makes the data particularly valuable.

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