
Population Dynamics – Session 2

Effects of stream proximity on trails of *Cuniculus paca*: a 20 year survey

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The Paca (*Cuniculus paca*), found from Mexico to Brazil and Paraguay, is one of the largest rodents in the world (5-14 kg). The species is hunted for its valued meat throughout its distribution area. Pacas use burrows that have multiple entrances and exits, with at least one leading to a water source. The latter is used both to escape from predators as well as in reproductive behavior. Given the foregoing, the density of pacas and their trails should therefore theoretically be higher nearer sources of water. We walked a trail leading away from a stream and recorded the number of paca trails at 50 m intervals for 600 m, and every 10 m along an elevation gradient. This count was conducted over the span of 20 years (1997–2017), at the Alberto Manuel Brenes Biological Reserve, San Ramón, Costa Rica, specifically along the Palmito trail (10° 13.14 N, 84° 35.79 W). The number of paca trails decreased with distance from water in 2017 ($y = -0.024x + 7$, $R^2 = 0.82$). We found seven trails at 50 m from water, five at 100 m and three at 150 m. Besides that we found only one additional trail, 250 m from water. The relationship between trail number and elevation was also significant, but not as strong ($y = -0.018x + 17.67$, $R^2 = 0.44$). There is therefore a clear relationship between distance from water and elevation at the site. The highest distances from water were found in 2007 and the largest number of trails in 2010 (10 trails at 50 m). The smallest number of trails was found in 2005, all within 200 m of water. The pattern has been consistent throughout the years: the number of paca trails always is greatest nearer the stream, although numbers and distances varied, perhaps due to climatic factors.

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