ESTIMATING DASYPODIDAE POPULATION DENSITY IN AMAZONIA COMBINING BURROW COUNT WITH CAMERA TRAPPING

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RESUMO

Data on armadillo densities in South and Central America are scarce. For these semifossorial and often nocturnal mammals, classical methods like capture-marking-recapture or linear transects that rely on direct animal count are not easy to carry out, especially in tropical rainforests. The objectives of our study are to describe Dasypodidae burrow density in French Guiana (FG) and assess the results of a method to estimate indirect population densities through burrow density and burrow use rate by camera trapping. Burrow censuses were done from September 2018 to June 2020 in 3 areas with terra-firme highland forest in nature reserves in FG: Trésor and Annamites (moderate human impact) and La Trinité (low human impact). In each location, we thoroughly inspected 24 regularly dispatched linear transects of 200mx10m in an area of 50 ha and georeferenced and measured all burrows. In Trésor and Annamites, active burrows and a random selection of older burrows were equipped with camera traps for 8-17 nights. In La Trinité, all burrows were systematically equipped for 6-9 nights. The records were independently analyzed by 2 team members. All discordant sightings reports (difference in species identification or number of sightings) were reviewed by a specialist. Burrow use was defined as an armadillo entering the burrow. If several entries were recorded in one night, only one was retained unless we could differentiate individuals. Burrow use rate was calculated for each species by dividing the number of independent armadillo records by the number of trap nights and multiplied by 100. Armadillo population density per km² was estimated by multiplying burrow density by burrow use rate and by 100. We surveyed a total of 14.4ha (4.8ha in each location). We found 62 burrows in Trésor, 68 in Annamites and 75 in La Trinité, corresponding to a burrow density of 12.9, 15 and 15.6 burrows/ha, respectively. We recorded pictures and videos for 240, 272 and 467 trap nights respectively in Trésor, Annamites and La Trinité (total: 1061). In Trésor, we recorded 18 independent armadillo sightings including 4 and 7 burrow use events for Dasypus sp nov. and Dasypus kappleri, respectively, leading to a population density estimate of 20.64 animals/km² for the former and 32.25 animals/km² for the latter. In Annamites, 47 independent armadillo sightings included 19 burrow use events of Dasypus sp. nov., leading to a population density estimate of 88.23 animals/km². In La Trinité, we recorded 67 independent armadillo sightings including 3 and 9 burrow use events, respectively; population density estimates were 10.02 animals/km² for Dasypus sp. nov. and 30.06 animals/km² for D. kappleri. To our knowledge, this is the first armadillo density study in the Guiana shield. The burrow density we found is coherent with other studies published in Amazonia. It is however difficult to compare our armadillo density estimates because most of them took place in different biomes or used daytime census while we observed only one daytime armadillo record. Combining camera trapping with burrow census could allow to estimate population density for armadillos.

PALAVRAS-CHAVE: Amazonia, Burrow, Camera trap, Dasypodidae, Density

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