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ACCURACY OF METHODS USED FOR ESTIMATING WILD CHIMPANZEES' DAILY TRAVEL DISTANCE

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Travel is an energetically costly behaviour, and travel distance is often used as an index of energy expenditure in chimpanzee ecology studies, thus it is particularly important to estimate it accurately. This study evaluates the accuracy of methods used to estimate wild chimpanzees' daily travel distance. This is usually calculated by summing the straight-line distance between points where positional data are recorded. Positions are taken at regular intervals or at significant places (nests, feeding trees). I analysed a dataset of 100 nest-to-nest travelling routes of habituated male chimpanzees from the Kanyawara community, Kibale National Park, Uganda. Data were collected between 2007 and 2009 and positions recorded automatically by GPS at every 10 metres of travel. I compared the resulting daily travel distances with estimates of the same route calculated by sub-sampling the original dataset, changing either the interval when a position was recorded, or the minimum stationary time spent at a location necessary to record its position. Predictably all resulting estimates were shorter than the 10-metre sampled route. The relationship between sampling interval and accuracy of the results is analyzed and correction coefficients relative to the sampling method adopted are proposed. These could be considered when analysing long term travelling data, comparing datasets obtained with different sampling techniques, or designing an optimal sampling method for studies on chimpanzee ecology.

Keywords: chimpanzee, daily travel distance, estimation accuracy, ranging