

Abstract

Circular statistics is an area not used very much by ecologists to describe animal movement patterns. Nevertheless, the connection between the evaluation of temporal recurring events and the analysis of directional data have converged in several papers, and show circular statistics to be an outstanding tool for understanding animal movement better. The aim of this chapter is to evaluate the applications of circular statistical tests to check uniformity hypothesis in animal movement and its potential interpretation within the general framework of movement ecology. Four methods of circular statistics: Rayleigh's, Watson's, Rao's spacing and Kuiper's test based on the mean resultant length are applied to examine the uniformity hypothesis of GPS derived telemetry data of elephant movement collected from Kruger National Park(KNP) South Africa. Overall, circular statistical uniformity tests methods represent a useful tool for evaluation of directionality elephant movement with applications including (i) assessment of animal foraging strategies; (ii) determination of orientation in response to landscape features and (iii) determination of the relative strengths of landscape features present in a complex environment.