Ecology, physiology and behaviour

Movement activity of red deer stags in response to hinds' oestrus cycles

Sándor, Gyula[1]; Csányi, Erika[1*]; Tari, Tamás[1]

[1] University of Sopron, Institute of Wildlife Biology and Management, Sopron, Hungary
* 123karierika@gmail.com

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We studied the connection between red deer stags' movement patterns and the hinds' reproductive cycles in Somogy County, Hungary. Our hypothesis proposed a link between the changes in stags' daily movement activity and the period when hinds enter oestrus. Temporal patterns of conception (n=89), including the onset, peak, and end of the mating period, were identified for the studied population. Concurrently, the stags' activity levels during this ecologically critical time frame were monitored using GPS telemetry (n=4). The findings revealed that 60% of hinds were conceived between 31 August and 19 September, 2020. A significant difference was observed between the conception rates in the early and later stages of the rutting period. During the initial phase, oestrus synchrony among hinds led to increased activity in stags due to harem herding behaviour, compared to the pre-rut period. As the rut progressed and the number of fertile hinds decreased, stags exhibited heightened movement activity, likely attributed to intensified mate-searching behaviour. Our results demonstrate that the oestrus patterns of hinds significantly influence the movement dynamics of red deer stags.