Red deer (Cervus elaphus) selection for foraging zone in a woodland dominated landscape.

Anthony Bled*[1], Clément Calenge[2], Catherine Collet[3], Vincent Boulanger[4], Vivien Siat[5], and Sonia Saïd[1]

[1]Office Français de la Biodiversité – Direction de la recherche et de l'appui scientifique – France
[2]Direction de la Surveillance de l'Evaluation et des Données – Office Francais de la Biodiversité (OFB) – France
[3]Institut national de la recherche agronomique [Champenoux] – Institut national de la recherche agronomique (INRA) – France
[4]Recherche, développement et innovation (ONF-RDI) – Office National des Forêts – Pôle de Fontainebleau/Compiègne - Boulevard de Constance - 77300 Fontainebleau, France
[5]Office Français de la Biodiversité – ministère de la Cohésion des Territoires et du ministère de la Transition écologique et solidaire – France

Résumé

Current ungulate population threaten forest renewal (Bergquist, Löf, et Örlander 2009; Barrere et al. 2021; Angst et Kupferschmid 2023) in most countries of the northern hemisphere through pressures such as deer browsing of seedlings and sapling (Bernard 2017; Rietsch et Saïd 2022). The browsing pressure seems to be spatially heterogenous and linked to habitat selection ((Morellet et Guibert 1999; Lone et al. 2014). Improving our knowledge of deer habitat selection could provide forest managers with additional means of reducing browsing pressure on regeneration stands. In " La Petite Pierre national game and wildlife reserve ", monitoring of population abundance variation as well as GPS tracking of red deer (*Cervus elaphus*) started more than 20 years ago. Furthermore, foraging zones (meadows and pre-woods) have been created to increase food availability and thus the growth of red deer population. Meadows are essential for red deer because as intermediate feeder with a grass-based diet (Dumont et al. 2005; Storms et al. 2008), these landscape elements are a particular source of alimentation in woodland. Hence, we assume that foraging zones will be selected by red deer in their home range. Using 53 GPS-collared hinds tracked between 2003 and 2023 with some individuals monitored up to 3 years, we analysed habitat selection of foraging zones in proportion to their availability and considering season as well as red deer density in the study site. We estimated habitat availability by mesuring individual home range with the minimum convex polygon (MCP) method. There is a positive selection for meadow but not for pre-woods. This selection is not affected by red deer density but there seems to be an annual variation of this selection, potentially due to environmental variable like temperature and winter snow cover. To our knowledge, the preference of red deer for meadows has been studied in agricultural landscape but this is the first time that it has been demonstrated in woodland where this habitat type is represented by punctual landscape elements (Godvik et al. 2009; Allen et al. 2014; Lande et al. 2014). Next step consists of comparing the spatial distribution of meadow and browsing pressure to assess the consequences of this selection on forest regeneration.

*Intervenant

Mots-Clés: Habitat selection, Cervus elaphus, Meadow, Facilitation, Forest rewenal