

Targeted cattle grazing as an alternative to herbicides for controlling weeds in bird-friendly oil palm plantations

ABSTRACT

The use of agrochemicals is expected to increase with the global expansion of oil palm plantations. In line with environmentally sustainable palm oil certification, targeted grazing can minimize the dependency on herbicides for controlling weeds in plantations. Here, we show for the first time that targeted grazing would control weeds and improve biodiversity of desired animal species. We sampled birds at 45 oil palm plantations in Peninsular Malaysia that were systematically grazed, non-systematically grazed, or herbicide-controlled plantations without cattle grazing. We found that bird species richness increased with size of grazing area, but decreased with number of cattle. Bird abundance was higher in the systematic grazing system, but negatively related to number of cattle. These factors explained 18.41 and 25.34% of the observed variations in bird species richness and abundance, respectively. Our findings suggest that targeted cattle grazing can be instrumental for transforming conventional oil palm agriculture into more biodiversity-friendly agroecosystems. Targeted grazing is likely to be practical under field conditions in major palm oil producing countries. In addition, the use of targeted grazing as a biological control method for weeds would be welcomed by palm oil consumers and encouraged by sustainable palm oil certification bodies such as the Roundtable on Sustainable Palm Oil (RSPO).

Keyword: Biodiversity-friendly agroecosystems; Biological control; Bird abundance; Cattle grazing; Oil palm; Species richness