

The influence of burning and mulching on sand heath birds in SPA Colbitz-Letzlinger Heide

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Abstract. The active military training ground in SPA Colbitz-Letzlinger Heide is one of the largest heathlands in Germany and is of national importance for typical sand heath birds like the hoopoe (*Upupa epops*), nightjar (*Caprimulgus europaeus*) and tawny pipit (*Anthus campestris*). The processes of mulching and burning are strategies to maintain areas. One aim of this current study is to reveal the influence of these management strategies on sand heath birds.

Key words: sand heath birds, military training ground, burning, mulching.

1. Introduction

The active military training ground in SPA Colbitz-Letzlinger Heide is characterized by 4.500 ha of the habitat type 4030 and is therefore of nationwide importance in the transition zone of atlantic to the continental climate (Sysmank et al., 1998; Lütkepohl, 2009). Changes in military techniques and training operations modify the landscape. As a consequence the favourable habitat status of European dry heaths is affected by ongoing grass- and scrub encroachment. Mulching and burning are management strategies to maintain areas open and ensure military training (Röder et al., 2010); Bundesministerium der Verteidigung, 2014). As part of the project it will be shown how these management strategies are affecting the colonization of heathland birds.

2. Study area

The study area is on the active military training ground called Altmark, which belongs in large parts to the SAC and SPA area Colbitz-Letzlinger Heide. This SPA is located

in the northern part of Saxony-Anhalt and contains an area of 23.000 ha (Glaser et al., 2007).

The Climate is characterized by strong winds and droughts during the summer. Also there are differences in temperature between night and daytime as well as frequent night frosts (Karlsch, 1991). Heathlands, inland dunes and natural forest form a high quality area with different ecological habitats (Conrad et al., 2010). Therefore it can be concluded that the Colbitz-Letzlinger-Heide has a nation-wide importance for hoopoe (*Upupa epops*), nightjar (*Caprimulgus europaeus*), tawny pipit (*Anthus campestris*), northern wheatear (*Oenanthe oenanthe*), woodlark (*Lullula arborea*), great grey shrike (*Lanius excubitor*) and stonechat (*Saxicola rubicola*).

3. Research methods

The mapping of birds is based on population density detection. With this method it is possible to gain an overview on the present species and the exact bird breeding status within the territory (Fischer et al., 2005). The study was conducted on 5–6 day as well as 2–3 night inspections per year from 2012 until 2014. During the day it was a walk



Figure 1. The burning area (left) and the mulching area (right)

like a loop through the study areas with the notation of species and their behavior. The focus with the study is laid on the influence of mulching and burning (Fig. 1) on the incidence of sand bird species by Flade (1994) hoopoe (*Upupa epops*), nightjar (*Caprimulgus europaeus*), red-backed shrike (*Lanius collurio*), tawny pipit (*Anthus campestris*), northern wheatear (*Oenanthe oenanthe*), woodlark, (*Lullula arborea*), great grey shrike (*Lanius excubitor* and common stonechat (*Saxicola rubicola*) by comparing several 100 ha areas.

4. Results

The Colbitz-Letzlinger-Heide entails nationwide importance for the breeding of hoopoe, nightjar and tawny pipit. 40 % of the population lives in this military training area in Saxony-Anhalt (Felinks et al., 2011). However the sand heath birds demand different requirements to their habitat and to the management strategy. The tawny pipit prefers large open sand areas or short vegetation (Andretzke et al., 2005; Steffens et al., 2012). The results of the conducted research study show that this bird will only be found on burned areas and not on mulching areas. As a result of the progressive vegetation development the number of breeding pairs was halved within two years after burning. The vegetation grows back and therefore two years after burning the number of breeding pairs halved (Fig. 2). The northern wheatear demands somewhat similar habitat standards as the tawny pipit though requires low raised stands (Panov, 1974). On burning areas this bird has the most breeding pairs / 10 ha in 2014. Within mulching areas this bird can be found but then with lower number of breeding pairs. A bird who was only found on mulching areas is the red-baked shrike, because this species prefers thorn bushes (Andretzke et al., 2005; Steffens et al., 2012).

The nightjar has a different habitat demand. This sand heath bird prefers higher heathland with birches and pines in combination with bare soil (Bauer & Berthold, 1997; Klafs & Tübs, 1987). On mulching areas more nightjar breeding pairs are found than on burning areas. The number of breeding pairs decreased every year after management took place.

If a hoopoe is noticed on burning or mulching area it is not part of the population of the study area. It originates from nesting boxes in the surrounding area (Brackhan, 1993). Furthermore the number of breeding pairs is nearly the same since 2012 on both management types.

5. Discussion

The influence of the management strategies burning and mulching on the distribution from sand heath birds is visible by the results of certain species, e.g. the tawny pipit. However the specific habitat demands and preferred props like nesting boxes or stands are more important than the management strategies (Schäfer et al., 2006). The birds have a large space requirement and so edge effects of neighboring areas have an influence on the abundance.

Mosaic between breeding and food ground with different vertical vegetation structures is additionally important for the protection of these rare sand heath species on military training grounds (Schulze & Schäfer, 2012).

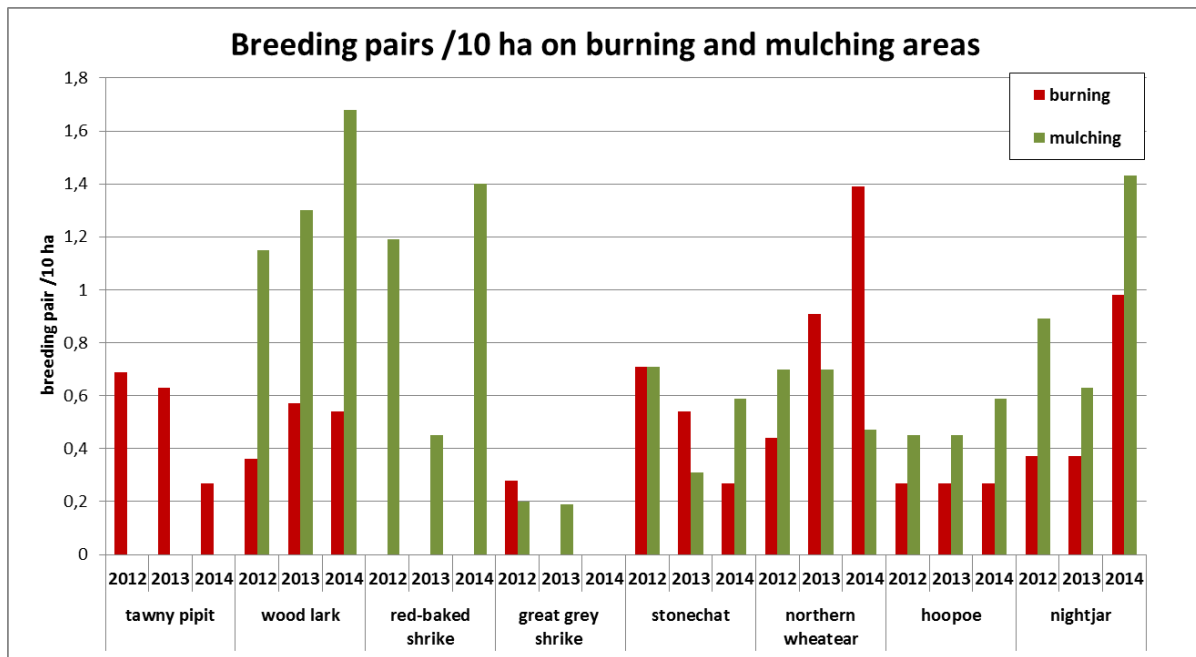


Figure 2. Breeding pairs per 10 ha on burning and mulching areas

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