

## Improving Whinchat habitats in the Murnauer Moos, Germany

DISTRICT OFFICE GARMISCH-PARTENKIRCHEN & MAX PLANCK INSTITUTE FOR ORNITHOLOGY

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The Murnauer Moos is the largest, more or less intact wetland and bog in Central Europe with a formerly large population of whinchats (*Saxicola rubetra*). Even though a large part of the area is protected as nature reserve and Natura 2000 site, whinchats have disappeared from many of their former territories. To support the local population, meadow stripes of varying forms and dimensions were left uncut in 2016. In the following breeding season, the number of whinchats holding territories in one of the monitored areas increased by one third compared to 2016. Whinchats preferred fallow stripes for nesting and had a high breeding success in the study area in 2017, presumably due to the presence of fallow stripes in combination with favorable weather conditions.

### The Murnauer Moos – a whinchat’s paradise?

The Murnauer Moos (district Garmisch-Partenkirchen, Bavaria, Germany) is part of the northern foothills of the Alps at an altitude of 640 to 717m a.s.l. (see Fig. 1). It consists of a diverse natural landscape in a triangular basin (about 45km<sup>2</sup>) between two alpine mountain chains in the south-east and south-west and a hilly border in the north.

Within the Murnauer Moos, areas with the highest values for nature conservation have been protected as nature reserve (23,78km<sup>2</sup>); in addition there are special protected areas for birds (42,94km<sup>2</sup>; SPA, Natura 2000). Large parts of the

basin are covered with swamps, bogs and wet grasslands which traditionally have been one of the core areas for whinchats (*Saxicola rubetra*) in Bavaria. BEZZEL (1989) mentions that in the 1980’s the highest whinchat densities were found outside the nature reserve in extensively used grasslands. Since then, land use has drastically changed: areas in the surroundings of the nature reserve have turned into intensively used, fertilized meadows that are cut several times during the year, and large areas within the core area of the wetland are no longer cut at all. As a consequence, bushlands and dense reed beds have developed during the last decades. Both of these developments have reduced the habitat quality



Fig. 1: Basin of the Murnauer Moos seen from mount Heimgarten towards northwest (Photo: © Heiko T. LIEBEL).

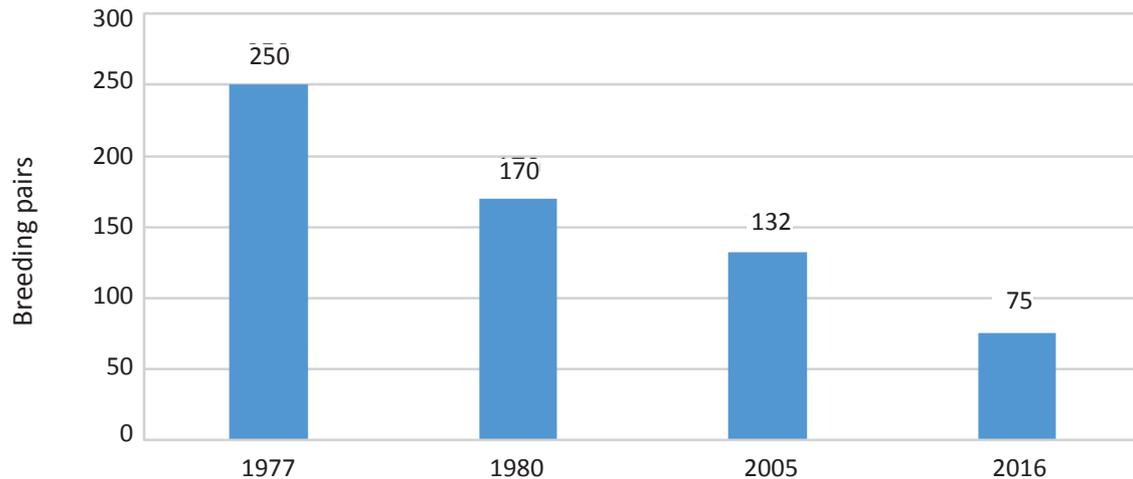


Fig. 2: Population decline of whinchats in the Murnauer Moos (BEZZEL & LECHNER 1978, database at LfU; WEISS 2016; in case of ranges the lower number was used).

for whinchats and are in part responsible for the local decline of whinchats (see Fig. 2).

A mapping project of grassland birds of the whole area in 2016 (WEISS 2016) showed that the once large whinchat population had dropped by more than 50% since 1977 and consisted of only 75-95 breeding pairs in 2016. The remaining population is mainly founded on wet grassland areas within the nature reserve that are cut only once a year and not before September 1<sup>st</sup>.

The overall decline of whinchats in Bavaria (LIEBEL 2015, RUDOLPH et al 2016) in combination with the drastic population crash in the Murnauer Moos motivated us to engage in a closer mo-

nitoring and designing specific measures to support whinchats in the area. The mapping project of WEISS (2016) provided us with an ideal basis to survey the success of these measures.

#### Measures to improve habitats

At the southern end of lake Ammersee (districts Weilheim-Schongau and Landsberg am Lech) fallow stripes have been used to attract whinchats when arriving from their wintering grounds by offering natural perches for hunting and singing. While these measures had been successful in recruiting whinchats during the first couple of years (C. NIEDERBICHLER, pers. comm.), recent



Fig. 3: Digitizing of fallow stripes in winter (Photo: © Heiko T. LIEBEL).

years have seen a new decline in whinchats, even though the habitat seems to be suitable (R. GRIESSMEYER, pers. comm.).

Impressed by the (at least) initial success of the measures at lake Ammersee, farmers of the Murnauer Moos area were encouraged to leave parts of their grasslands uncut, thereby creating fallow stripes of old uncut grassland. In the Bavarian system of contractual nature conservation (i.e. "Vertragsnaturschutzprogramm") farmers can leave up to 20% of their grasslands uncut without financial reward. Another possibility offers them financial compensation if they leave 5 - 20% of their meadows uncut and thus create obligatory fallow stripes. In both cases fallow stripes must not be established in the same area between years; instead different areas need to be selected and left uncut in subsequent years. In 2016, the district started to promote the establishment of fallow stripes among farmers that had contracts within the core areas for whinchats. Members of the District Office helped

farmers using a GPS device to avoid fines in case uncut areas should have exceeded the 20% limit of uncut area.

### Mapping of territories and breeding success

In spring 2017, territories of whinchats were mapped in two important subareas for whinchats the Weidmoos and the Niedermoos.

#### Weidmoos

In the Weidmoos territories were mapped twice, on May 5<sup>th</sup> and June 9<sup>th</sup>, 2017 in a project area covering 73ha, both times without leaving the car to avoid disturbing the last pair of breeding Eurasian Curlews (*Numenius arquata*) in the Murnauer Moos. Mapping until May 21<sup>st</sup> might be influenced by migrating individuals as demonstrated by GEIERSBERGER (2012). The results indicate an increase in whinchat territories by about one third compared with the previous year (WEISS 2016). In 2016 there were only two or three small fallow stripes. In 2017, an area of 3.6ha

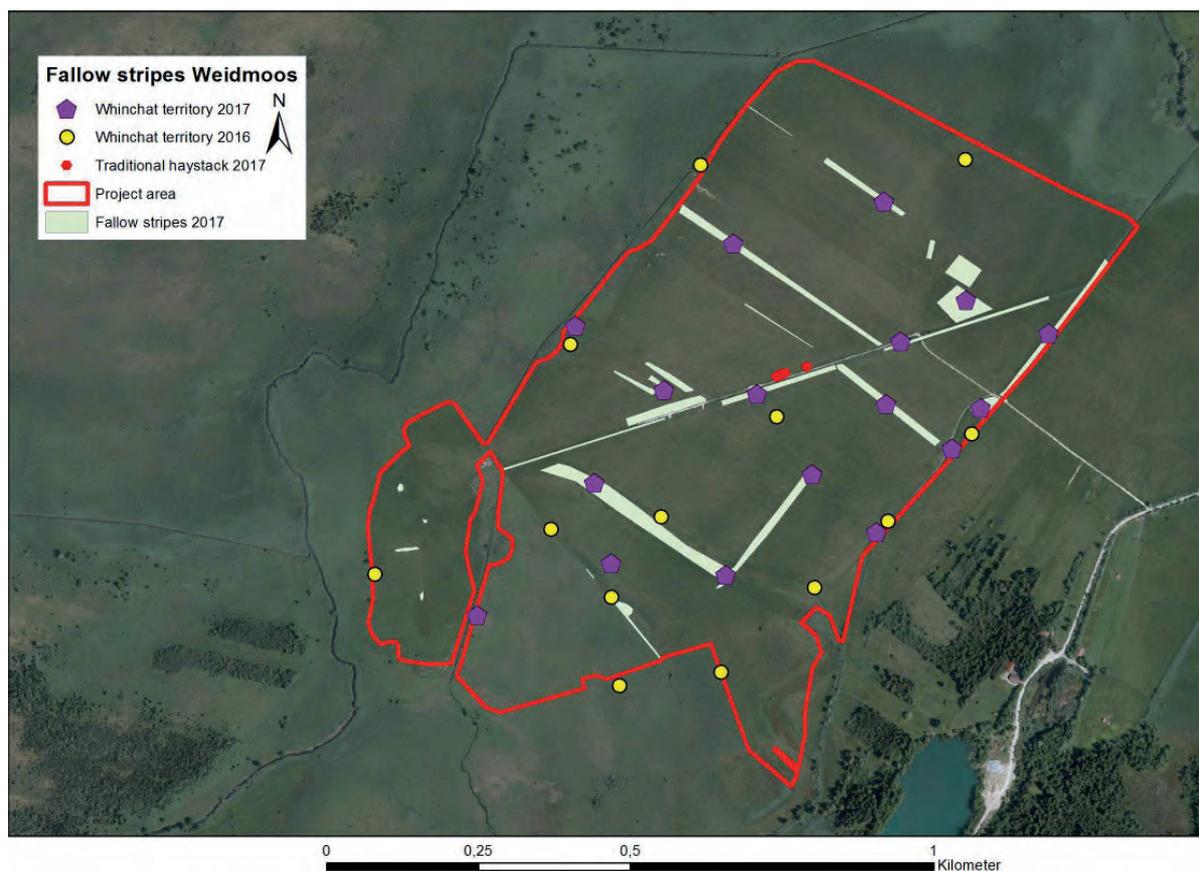


Fig. 4: Comparison of whinchat territories at Weidmoos 2016 with few and 2017 with several fallow stripes (note: northern- and southernmost areas of the project area were not covered well due to long observation distance from the car).



Fig. 5: Female whinchat at Murnauer Moos in spring 2017 (Photo: © Heiko T. LIEBEL).

were left uncut (about 5% of the grasslands). The stripes were of varying forms and contained a varying amount of reed (*Phragmites australis*), which whinchats used as perches. Most stripes were at least five meters wide. Obviously, whinchats used the fallow stripes in this subarea as song posts and in 2017 were more likely to settle within the large meadow. In 2016, they mainly

settled at the border of the adjacent large reed beds that surround the project area in the north, west and south.

The population density within the project area was 2.3 territories/10ha in 2017 compared to 1.6 territories/10ha in 2016. Hence, the population density was still much lower than densities in ideal habitats managed with fallow stripes at



Fig. 6: Narrow fallow stripes at Niedermoos (Photo: © Heiko T. LIEBEL).

Federsee (Baden-Württemberg), for example, where 6 territories/10ha are reached in nutrient-poor and sedge-rich meadows (EINSTEIN 2006, 2015). At the Tyrolean hot spot for whinchats in the Ehrwald basin (35km southwest of Murnauer Moos; A. SCHWARZENBERGER 2017, pers. comm.) population densities of 4.5 territories/10 ha are also higher than within the best subareas within the Murnauer Moos. During later visits in June, several juvenile whinchats could be observed within the Weidmoos, indicating that whinchats successfully bred within the area.

### Niedermoos

Niedermoos is one of three study areas where the Max-Planck-Institute for Ornithology investigates breeding success, interactions and competition between whinchats and stonechats (*Saxicola rubicola*). The site was chosen, because it is an important breeding area for both species. Further, measures to improve habitat quality can be realized in this location, as a large fraction of the area is owned by nature protection organiza-

tions (e.g. LBV) or the District. In 2016, a farmer left narrow stripes of the meadow unmown after every turn that he did with his tractor (Fig. 6). The result were more than 60 narrow fallow stripes of about one meter width. During spring migration in April we observed that many whinchats used these narrow fallow stripes as hunting perches.

The mapping of whinchats in this area of narrow fallow stripes did not demonstrate an increase in number of whinchat territories between 2016 and 2017, possibly because of the nutrient-poor humid meadows that lack plant species that grow high enough to serve as perches for the chats. However, intense search for nests and follow-up observations showed that the structures were used for reproduction. A total of 17 nests was found (Fig. 7), with ten of them located in fallow stripes (Fig. 8), three at the border to permanent fallow areas that are dominated by reed, three further nests were within the mown meadow, and one nest below a bunch of old mown grass

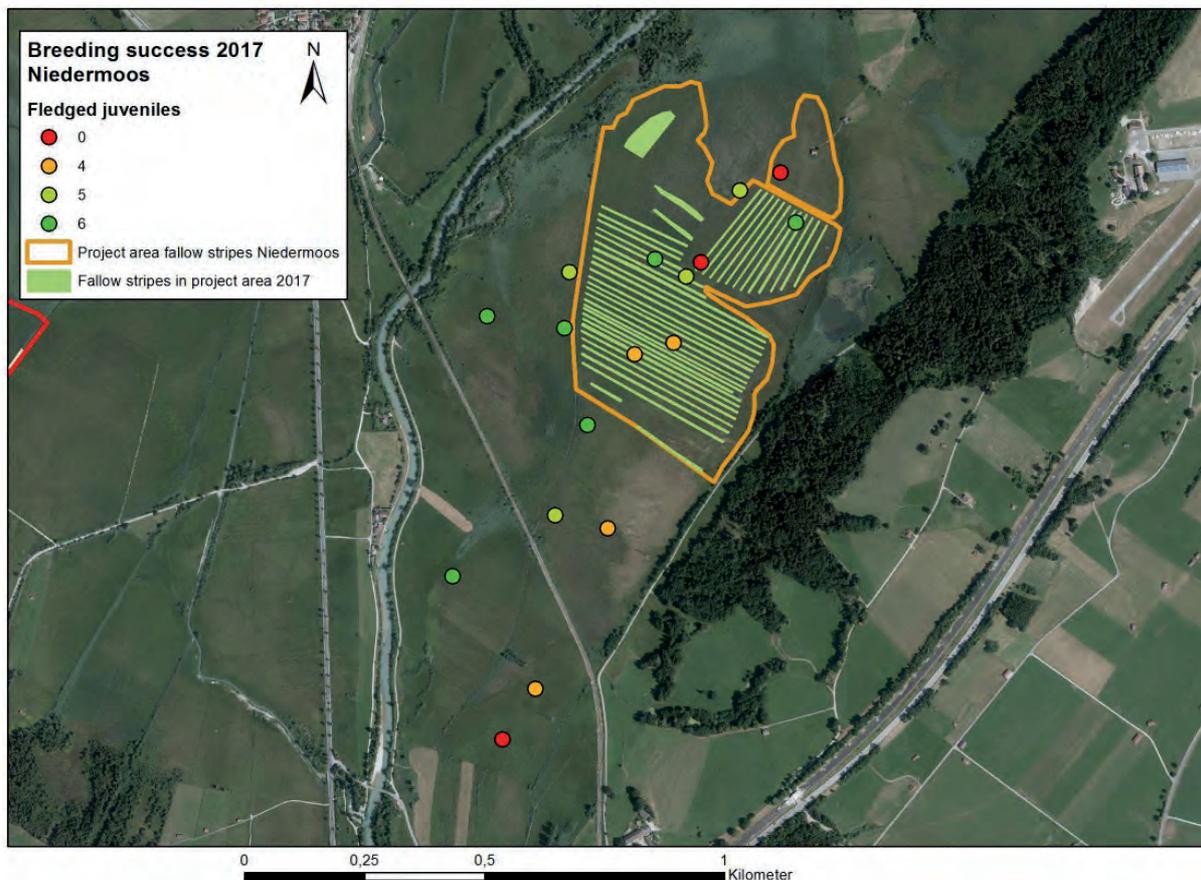


Fig. 7: Breeding success of whinchats at Niedermoos 2017. Note that the location of fallow stripes is only indicated for the project area, there were further unmapped fallow stripes within the rest of the area.



Fig. 8: Nest of whinchats in a fallow stripe (Photo: © Wolfgang GOYMANN).

that had remained in the meadow. Three nests were depredated by unknown predators, but two of the affected pairs immediately produced a replacement clutch and successfully bred in their second attempt. A surprisingly large num-

ber of 72 juvenile whinchats fledged. Also one of the other main grassland birds in the area, the meadow pipit (*Anthus pratensis*) used the fallow stripes for nesting.



Fig. 9: Late flowering plants (like *Gentiana pneumonanthe* in the foreground) and insects benefit from fallow stripes as well (Photo: © Heiko T. LIEBEL).

## Conclusions

Fallow stripes had a positive effect to attract whinchats within the study areas in the Murnauer Moos. Compared to other breeding sites of whinchats elsewhere, it is obvious that the densities reached within the Murnauer Moos are still below the potential for whinchats. The comparison of whinchat territories in the Weidmoos between 2016 and 2017 clearly shows that temporary fallow structures and the presence of perches may be the dominating limiting factors for suitable whinchat habitat within this part of the Murnauer Moos. Fallow stripes may not only help to increase breeding densities of whinchats, they may also represent important hunting perches for migrants passing through, i.e. a measure to improve migratory connectivity. Further, because whinchats preferentially chose fallow stripes as nesting sites, they could potentially be attracted to more intensely farmed areas (i.e. meadows that are cut more often), if they would offer such stripes with safe nesting possibilities. Of course, such measures also depend on other factors, i.e. a sufficient insect density in more intensely farmed areas will be required to successfully raise a brood.

The aim of this contribution is to publicly promote the positive effect of fallow structures for whinchats and to promote contracts including obligatory fallow stripes in nutrient-poor extensive grasslands during the contract negotiations with local farmers that participate in the contractual nature conservation program.

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