Citizen Science project about grassland birds in South Tyrol

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BACKGROUND

In 2021 a working group consisting of members of Eurac Research, Museum of Nature and Nature Office launched a Citizen Science project in which volunteer bird watchers were invited to report observations of grassland birds in South Tyrol. The idea behind this project was to complement the standardized grassland bird monitoring, which started in spring 2022. For understanding the distribution of rare species, a citizen science monitoring can provide valuable data, that can then be used for conservation measures. Apart from the scientific and conservational value, the project also aims at connecting amateur ornithologists and to raise awareness about grassland birds. After the successful first round the project was also carried out in 2022 with even more participants.

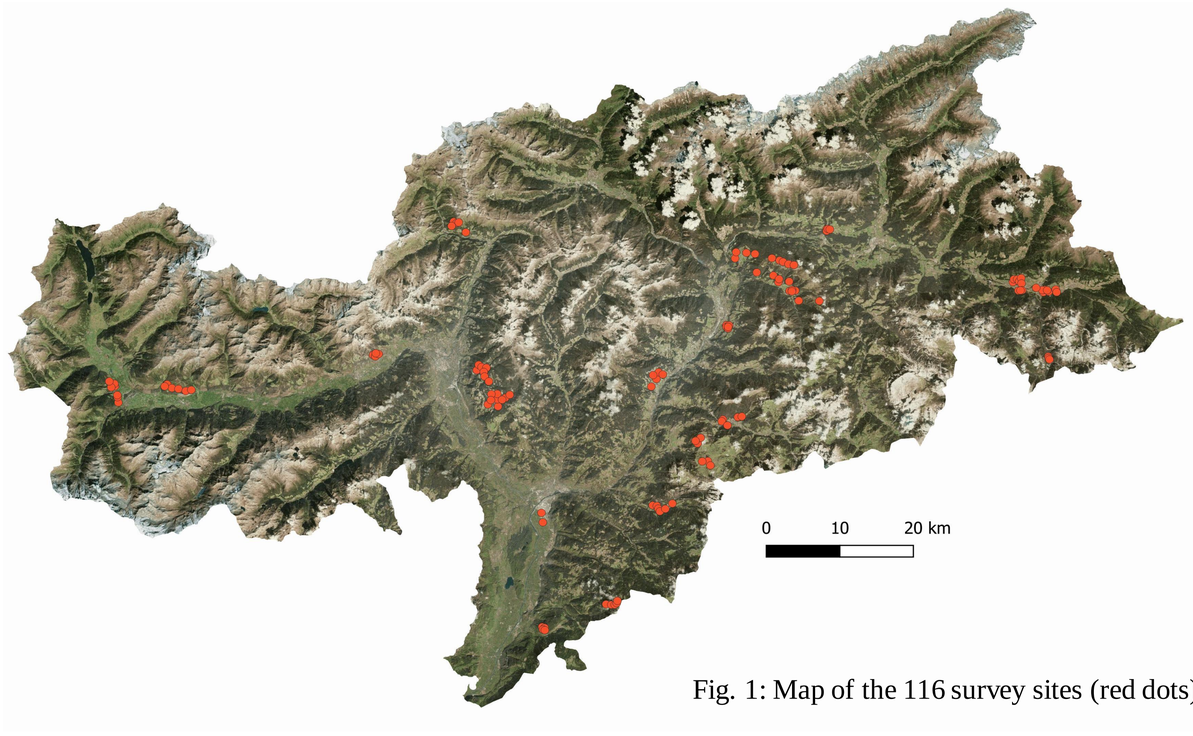

Fig. 1: Map of the 116 survey sites (red dots)

METHODS

The volunteers visited specific research areas suitable for grassland birds, where they counted for 10 minutes all the birds seen and heard within a radius of 100 m. Although all birds were noted, the focus was on twelve specific species that rely on agricultural land and have a high conservation value: *Alauda arvensis*, *Anthus trivialis*, *Coturnix coturnix*, *Crex Crex*, *Emberiza citrinella*, *Emberiza hortulana*, *Emberiza cirlus*, *Lanius collurio*, *Saxicola rubetra*, *Saxicola torquatus*, *Sylvia communis* and *Sylvia nisoria*. The survey period was during the breeding season (May/mid-July). At least two repetitions had to be done. Besides weather conditions, additional landscape and management information were also surveyed. Those variables included the percentage of mown meadow, while structural variables included average grass height, length of hedge rows and presence of single trees.

Fig. 2: Whinchat *Saxicola rubetra*

Fig. 3: Tree pipit *Anthus trivialis*

Fig. 4: Red-backed shrike *Lanius collurio*

Fig. 5: Yellowhammer *Emberiza citrinella*

Fig. 6: Skylark *Alauda arvensis*

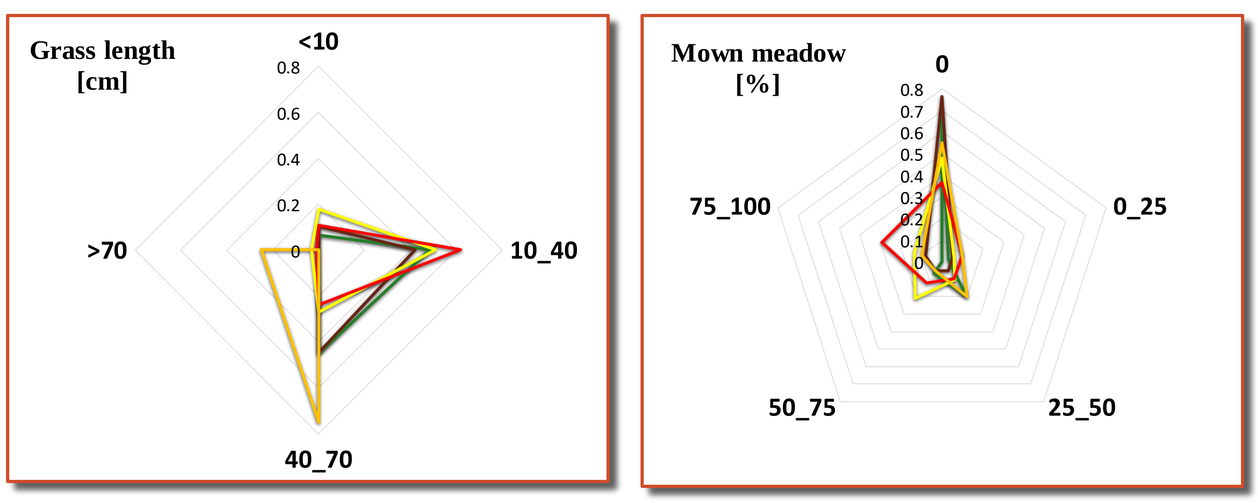

Fig. 7: Spider chart representing species abundance index (percentage) occurring with different management/landscape variables. Different line colors represent different species corresponding to species picture borders (see Fig. 1,2,3,4,5).

RESULTS

During 2021 and 2022 thirteen volunteers participated to the project and provided 2.225 observations, along 116 sites (Fig. 1), for a total of 377 repetitions. Only two target species were not encountered during the monitoring (*Emberiza cirlus* and *Emberiza hortulana)*, that are among the rarest and most threatened in the province. In total 82 different species were recorded. According to a first data exploration, the presence of five target species, which are the most representative ones due to their frequency of occurrence, was associated with habitat management/landscape variables (Fig. 7). All species showed a preference for unmown meadows and a grass height between 10 and 70 cm, especially *Saxicola rubetra* that preferred grass higher than 40 cm. The length of hedgerows seemed to be particularly important for *Lanius collurio* and *Saxicola rubetra*, while the presence of trees was of importance for *Anthus trivialis* and *Emberiza citronella*. *Alauda arvensis* preferred treeless landscapes.

DISCUSSION AND OUTLOOK

A citizen science project can provide useful and complementary data and at the same time promote public understanding of science involving enthusiast citizen. In this case, it also helps to raise awareness of the decline grassland birds are currently experiencing. As well known and studied in neighboring regions these species have specific needs. Indeed, these preliminary results confirm that farmland birds connected to ecotones rely on highly structured habitat with hedges and single trees, while some open-habitat birds need extensively managed treeless grasslands. An extensive management, allowing the occurrence of unmown grassland patches and relative long grasses, should be strongly encouraged in South Tyrol to best conserve grassland birds.
The collected data will flow into the database of the Museum of Nature South Tyrol, where they will be used for future conservation measures as complement of the standardized bird monitoring of the province. Future studies will analyze in detail the effect of landscape and management on all target species and on bird communities.