

Evaluation of small game and bird monitoring data

PannonEagle LIFE project, LIFE15/NAT/HU/000902

Action D1.



Photo: PannonEagle "hare road" with perching lesser grey shrikes - Márton Árvay



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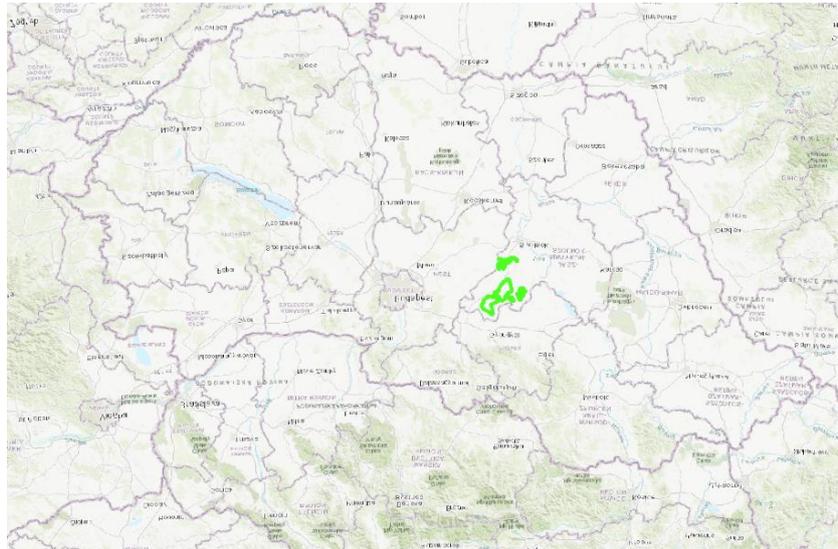
1. Introduction

1.1. BACKGROUND INFORMATION

PannonEagle Life project targeted to increase the population of the eastern imperial eagle (*Aquila heliaca*). One of the main habitat restoration actions in Hungary was the construction of “hare roads” at Jászság SPA. in the framework of Action C3.1. The action was carried out in cooperation with MME Birdlife Hungary and Hortobágy National Park Directorate. By increasing the potential micro-habitat for small game species such as european brown hare and pheasant it is possible to benefit both local communities and eagles. Working together with local game management professionals help to justify recorded data, especially when the “damage” of raptors is being overestimated by non-eagle friendly gamekeepers.

1.2. JÁSZSÁG SPA

Jászság SPA is situated in East Hungary and is part of the North Hungarian Plain. It is mainly lowland area with arable field, with semi-natural grasslands and saltic steppes. The most valuable bird species are the eastern imperial eagle (*Aquila heliaca*), saker falcon (*Falco cherrug*). Other species of interest are: tawny pipit (*Anthus campestris*), short-eared owl (*Asio flammeus*), eurasian stone-curlew (*Burhinus oedicnemus*), black stork (*Ciconia ciconia*), marsh harrier (*Circus aeruginosus*), hen harrier (*Circus cyaneus*), roller (*Coracias garrulus*), syrian woodpecker (*Dendrocopos syriacus*), black woodpecker (*Dryocopus martius*), red-footed falcon (*Falco vespertinus*), white-tailed eagle (*Haliaeetus albicilla*), black-winged stilt (*Himantopus himantopus*), red-backed shrike (*Lanius collurio*), lesser grey shrike (*Lanius minor*), black-tailed godwit (*Limosa limosa*), golden plover (*Pluvialis apricaria*), common redshank (*Tringa totanus*).



Map of the PannonEagle project's site

1.3. OBJECTIVES

In the frame of the PannonEagle LIFE project, we aimed to improve arable land with habitat-restoration actions. In cooperation with local municipalities a habitat surveyor measures the true boundaries of the municipality owned dirt-roads. Before the intervention these linear habitats were in a very low-diversity state and often ploughed illegally. A part of the PannonEagle habitat-restoration actions these margins were measured by land surveyor, marked with concrete poles and a contractor planted trees and shrubs along the dirt-roads. In some places the margin habitats were increased 4-5 meters in width, providing suitable shelter for European brown hares (*Lepus europaeus*), pheasants (*Phasianus colchicus*), passerine birds and pollinator insects. To indicate positive biodiversity changes two specialized monitoring schemes were elaborated: brown hare monitoring and the MMM –bird monitoring scheme.

2. Materials and methods

2.1. MONITORING SCHEME FOR BROWN HARE

European brown hare is a top prey species for the eastern imperial eagle (*Aquila heliaca*). Local hunting associations also dependent on brown hare shooting and trade. With suitable management the population of European brown hare could be increased so that both humans and eastern imperial eagle population could benefit. Staff members of MME Birdlife Hungary and Hortobágy National Park Directorate cooperated with local hunting associations to carry out the nocturnal surveys. Surveying groups consisted of 3-4 people with strong battery powered torches and 4WD cars. The counting was

conducted twice a year, Spring and Autumn in three consecutive nights. Local professional hunters from Kossuth Hunting Association (Jászárokszállás), Papp-Agro Kft. (Jászágó), Diana Hunting Association (Jászberény), Úttörő Hunting Association (Alattyán) also joined the hare counting.



European brown hare – one of the main prey species of the eastern imperial eagle.

2.2. MMM – BIRD MONITORING SCHEME BY MME BIRDLIFE HUNGARY

MME Birdlife Hungary has an ongoing monitoring survey for birds which could provide trends for individual bird species across the country. The survey can also potentially indicate the efficiency of habitat restoration activities in a long term.

The process for this survey is as follows: the surveyors enter the area (e.g. based on the 10 x 10 km UTM squares that include the area), within which area 2.5 x 2.5 km UTM square(s) are drawn by lottery every year, so they could regularly conduct surveys within the framework of the MMM. The boundary of the 2.5 x 2.5 km UTM square is marked on the map, as well as the position of the 25 possible observation points from which the surveyor must select (with the help of the attached "Observation point selection data sheet") the 15 db observation point where the counts will be carried out. Before beginning the bird count, one survey day should be set aside to complete the habitat mapping. Then, on the one hand, the surveyor can select the 15 observation points while walking in the field, mark them or "tie" them to well-recognizable landmarks (e.g. mark the trees in the forest, etc.) so that the surveyor will familiarize the area. On the other hand, on the 15 appropriately selected points on the map, the main habitat types must be drawn based on the categories sent by the Monitoring Center, on the pages of the attached "Field Diary". At each observation point, the species

and quantity of birds heard or seen within a 100-meter radius of the observation point must be recorded within a strictly 5-minute period.

The following must be recorded separately in the field diary:

individuals of species presumably nesting within the 100 m radius area (individuals observed or landed on the ground or vegetation in the area, as well as

- individuals permanently present above the area, e.g. field lark);
- individuals that flew over the area (flew over without landing);
- individuals of the species detected outside 100 m.



MME bird monitoring sampling points inside a 2.5 km² UTM square

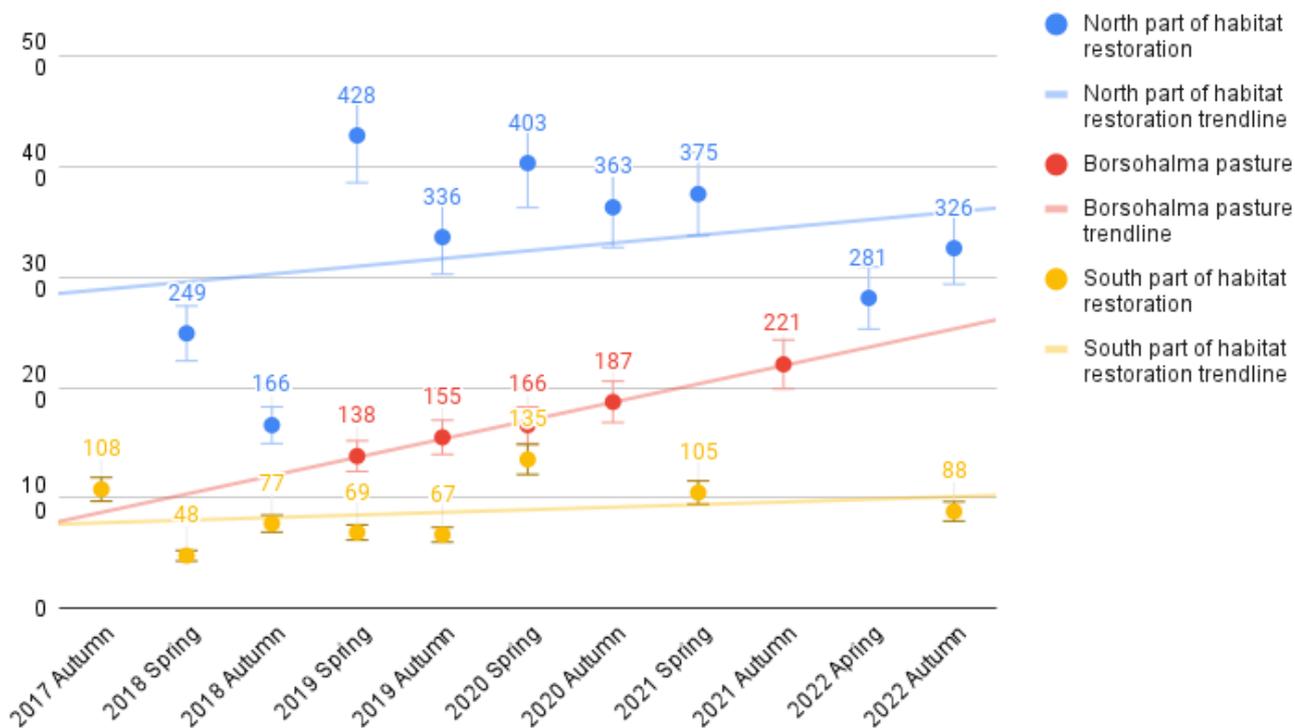
The surveyor must stay in the center of the observation point during the 5 minutes, he can use binoculars, but he cannot move within the 100m radius area. After the five minutes have passed, the surveyor has to go to the next point, where the surveyor also has to count for 5 minutes, also in a circle with a radius of 100 m, etc. The observation points must be chosen in such a way that they are accessible (e.g. do not fall on a closed and guarded industrial site, etc.). 25 points are selected within the drawn square so that the surveyor can choose the 15 that can be easily traversed.

It is very important that the observer conducts the observation independently during the 5 minutes. If two or more people go out into the area, only the individuals seen and heard by the observer should be marked in the field log.

3. Evaluation of small game & bird monitoring data

3.1. EVALUATION OF EUROPEAN BROWN HARE DATA

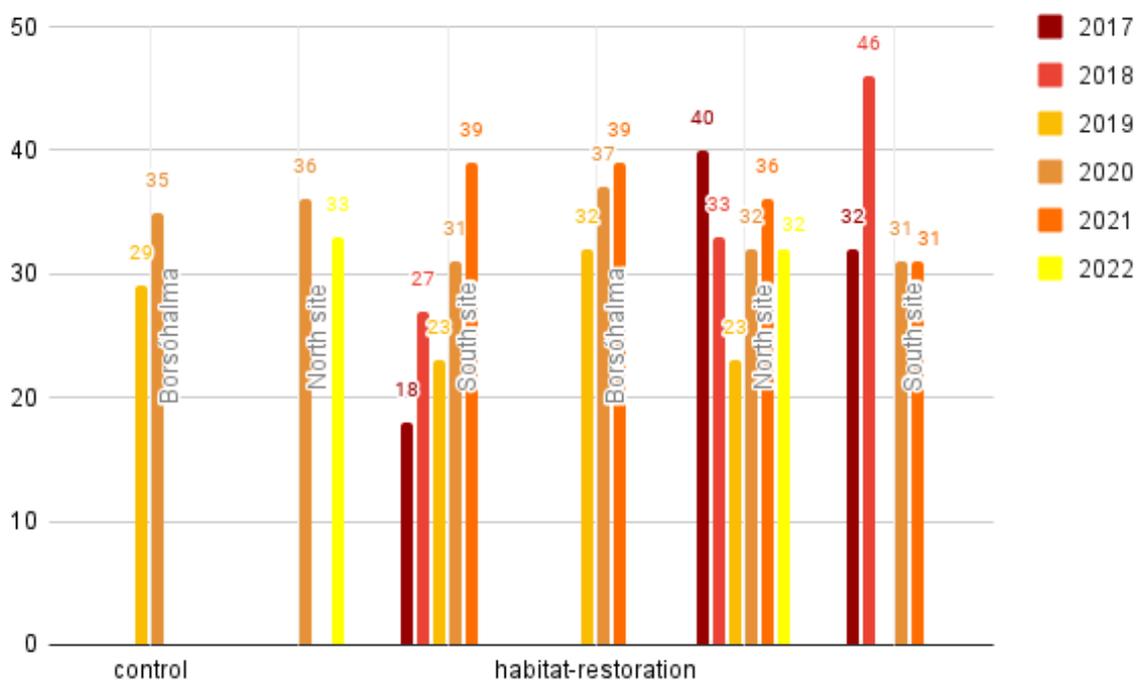
Habitat restoration could potentially help hare population by providing food and shelter. Counting data in all three habitat restoration sites show increasing trend. The largest increase was observed at Borsohalma pasture, steady increase was also observed in the north part of the habitat restoration site and a very small increase was recorded in the south part of habitat restoration site. Unfortunately, the Spring of 2020 and 2021 both brought extreme drought which probably also played a significant role in the temporal decrease of the hare population. Although Autumn surveys were conducted before the hunting season, hare population also depends on game management practices. Fortunately, in the Jászság area the local hunting associations have a positive attitude towards raptors.



Monitoring data of European brown hare population at the habitat restoration sites.

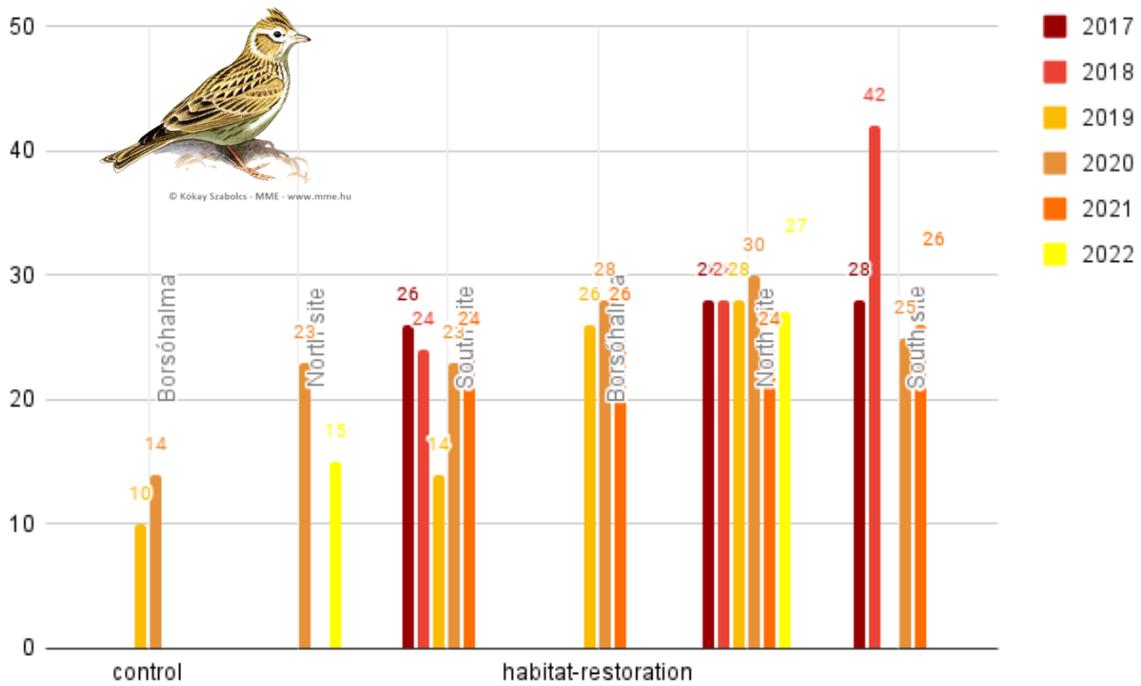
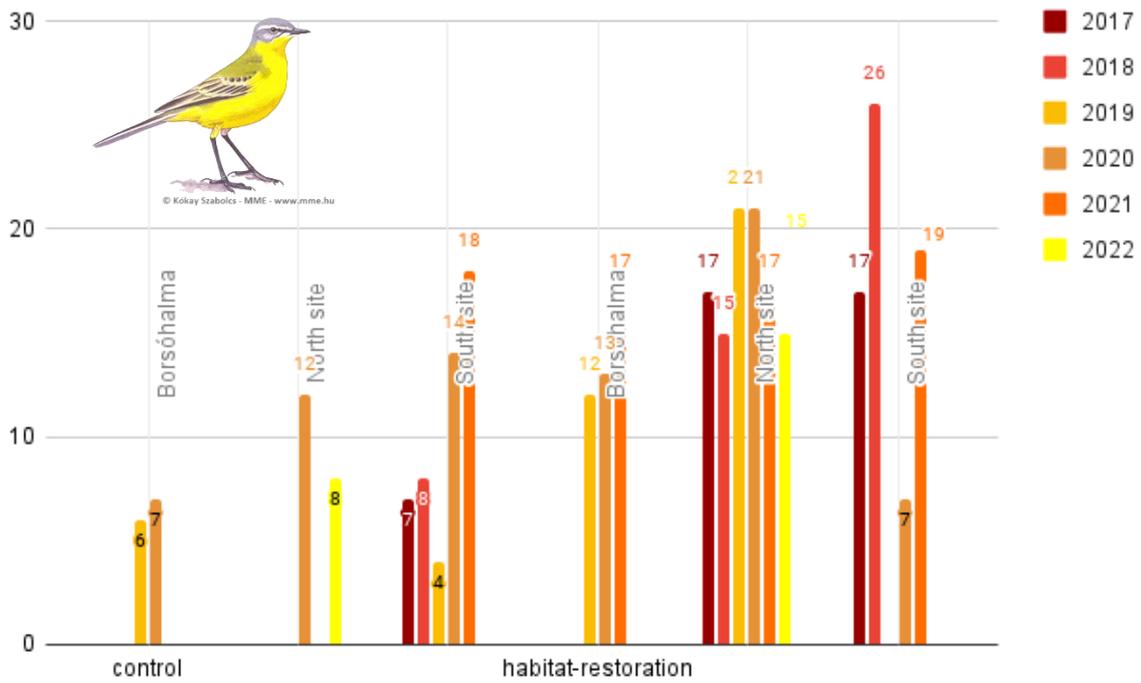
3.2. EVALUATION OF BIRD MONITORING DATA

MMM bird monitoring can potentially indicate long-term trends for individual species and also change in the number of species in sampling square throughout years. For the habitat-retoration squares there was an increase in the number of species at Borsohalma, stable number of species at the north part and the south sites. At the control squares a smaller increase was experienced at Borsohalma, decrease was observed at the north control site and surprisingly a strong increase was observed at the south control site. For long-term effect these sites will be monitored in the After-Life period too.



Number of species at the habitat-restoration and control sites

The most abundant passerine species were western yellow wagtail (*Motacilla flava*) and eurasian skylar (*Alauda arvensis*). Both species adapt relatively well to agriculture land use although they both have a decreasing population trend in Europe in the last ten years mainly due to pesticide use and industrial farming. They all nest on the ground which makes them more exposed to both natural and human induced threats. These farmland species were recording in many localities in all three habitat-restoration sites. The western yellow wagtail was observed slightly more frequently and larger numbers in the habitat-restoration sites than the control sites overall. Both species seem to have a stable population in the habitat-restoration squares. Borsohalma has the lowest numbers for both species but it can be due to the habitat-composition too. At the habitat-restoration sites both species seem to have a more even number throughout the years.



Recorded number of western yellow wagtails and eurasian skylark in the habitat-restoration and control sites

4. Summary

Overall, the habitat restoration actions in the framework of PannonEagle Life project had a strong positive effect on the hare population. Conducting survey in cooperation with members of local game management helped the general cooperation between conservation and game management. Recorded data indicates that hare population can have an increasing trend even with the presence of apex predators such as the eastern imperial eagle (*Aquila heliaca*). Farmland birds also benefitted from the PannonEagle habitat restoration actions at the Jászság SPA even with varying environmental factors. Considering that some farmland birds having a decreasing trend across Europe, stable populations of passerine species are also important achievements.



A typical restored "hare road" along the municipality owned dirt roads



Active pheasant nest in one of restored margin habitats