

BLOCK 8



WHICH BIRDS
LIVE IN
FARMLAND?



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Agriculture in Central Europe started to develop during the Neolithic revolution which took place about 5000 BC. Controlled ability to cultivate and breed animals has become an incredibly important achievement in the whole human history. It allowed us to gather food supplies which resulted with humans difecting from a nomadic to a sedentary lifestyle. In the next stage it gave an origin for the development of urban areas. Agricultural areas are a prime example of landscape modification by humans. So much anthropogenic change has occurred through our exploits that many scientits now say humans are the main force driving the condition of the planet. The changes have been heralded as a new era in planet Earth's histroy and is termed the Anthropocene. This era is being characterised by mass species extinctions at a rate 10 times higher than the natural (background) level.

Agricultural areas have some special characteristics called physiographic features, such as: large open space, flat or slightly undulating terrain surface, seasonal land cover variability, low and dispersed buildings, small human population. Agricultural lands, which cover about 60% of our country's area, can be divided into 3 main economic use types:

- arable lands – terrains used for cultivation of different kind of plants,
- meadows and pastures – areas permanently covered with grass, used in animals breeding process,
- plantations, including orchards – lands covered with the same type of plants for many years (e.g. trees, fruit bushes).

Plants and animals which occur here are introduced and controlled mainly by humans. It is also specific to apply different kinds of exertions in order to improve cultivation: soil reclamation, land reclamation, fertilization and plant growing agents. Biocenosis refers to a set of organisms locally occurring together that are related in different ways with their habitat and with each other, so called agrocenosis is characterised by weakened self-regulation possibilities and substantial simplification regarding composition of species compared with natural biocenosis.

Sets of bird species living in agricultural landscape is created by:

- native species, absorbed form local avifauna (e.g. barn owl, little owl, barn swallow),
- adventitious species – synanthropic, coming mainly from Southern Europe and Asia (grey partridge, Eurasian skylark, yellowhammer, sparrow, white stork).

A lot of factors have substantial influence on the number of birds which are able to settle down in agricultural areas. These factors are e.g. surface structural differentiation, predominance of large scale monocultures of cultivated plants, large soil fragmentation with diverse crops. What is also crucial is the occurrence of balks (which used to be widespread), mid-field trees, ponds. These elements, from a biological point of view, have very positive impact on the quality of landscape. The number of bird species which are present on shredded fields is at least twice



bigger than in monocultures. It means that all these elements which are characterized by more traditional cultivation method have positive effect on the quantity increase of birds and other animals.

It is very easy to prove this fact with going on a spring trip to the places where are present mentioned above various forms of enriching field areas. As a comparison it is worthwhile visiting terrains where there is a domination of multi-hectare cultivation of one type of plant only. We will for sure hear or see more birds in the first type of place. It is so because animals have great diverse settlement requirements. Any kind of terrain diversity is very attractive for them. Besides this, varied agricultural crops ensure much richer food base. They also create many places to hide in case of predators danger as well as in case of different agronomic activities performed by humans.

Species which have their nests on the agricultural terrains soil are greatly adapted to this. Northern lapwing or corn crane's eggs have distinctive cone shape which prevents them from moving. They also have specific flecks which successfully camouflage their localization. Masking coloration gives a chance to eggs and chicks to avoid predators. Unfortunately no protection exists; from intensive agricultural activities, such as low mowing.

One of the most crucial things which has the influence on the density of birds on farmlands is the quality of soil present on particular terrain. This factor determines the quantity of invertebrates living in soil. They are the important part of birds diet. In the case of some bird species we can say in a very unusual way what kind of nutrients are a part of their diet. During our nature expeditions we might notice some mysterious, irregularly shaped clods in which at a first glance there are visible tangled hair, feathers, parts of bones and teeth. Usually we can see them aggregated e.g. under bigger trees, in the neighborhood of bigger birds' nests as well as on abandoned attics and churches belfries. Such findings are called pellets and they are formed by birds which hunt for other animals (not only mammals or birds but also insects). Birds regurgitate undigested residue through their mouth, most often in a place of rest. The most distinctive pellets are formed by owls, storks, seagulls, herons, ravens and shrikes. On the basis of shape, size and colour we can assume who the owner of pellet is. By analysing a pellet's composition we can describe the diet of pellet owner. The analysis of pellet composition is useful in a case when there is no direct way to observe what a particular bird eats. It is especially difficult in case of nocturnal owls.





FIG. 1 Great Crested Grebe carrying chicks on the back.

agricultural landscape birds are currently now the ones facing the greatest threat of extinction in European Union. For many species connected with agricultural ecosystems there has been noted a significant decrease of their quantity. This situation has caused concerns amongst ornithologists and ecologists from many European countries. This resulted in starting long-time monitoring researches which purpose is to estimate the scale of this problem and identify the reason for it. There was created Farmland Bird Index (FBI) which is the indicator of the condition of agricultural ecosystems which cover a considerable percentage of European Union's area and about 60% of Poland's area. There were classified groups of bird species which are clearly connected with agricultural terrains and are under the greatest pressure of changes taking place on these types of lands. Such species are described as index species. In the European Union there are 37 bird species creating this group whereas in Poland there are 22, including: Eurasian skylark, white stork, northern lapwing, red-backed shrike, Eurasian tree sparrow, barn swallow, yellowhammer, black-tailed godwit.



FIG. 2. Lapwing chick blending in with the vegetation

The main reason for decrease of FBI value is intensification of agricultural production in the area (including in cultivation undeveloped lands with preserved nature features) as well as improved technology, mechanization and agrochemical treatments. The value of FBI shows a clear declining trend in Western European countries. After war there was lack of food in Europe and that is why there was applied effective and intensive agricultural production. Such strategy has led to the irreversible changes and losses in natural environment. Polish villigae which characteristic is unusually beautiful landscape have a crucial significance for preservation of birds population. Balks, fallows, ponds, midfields trees and bushes play the important role in keeping a proper condition of agricultural lands because they reduce soil erosion, improve microclimate in farmlands and guarantee keeping biodiversity.

Nowadays there is out more and more emphasis on environment protection and keeping biodiversity in village areas. Society is aware that agriculture does not mean only the production of food but also beautiful cultural landscape which is very often a result of a tradition cultivated for many centuries. Legal tools and programs which let taking protection activities play crucial part in this situation. Some of them are: statutory protection, Nature 2000 program, agri-environmental programs, programs of active protection of some species (white stork, western marsh harrier, common kestrel, barn owl), EU subsidies encourage to reduce agricultural activities on areas where live notably endangered species, such as corn crane, northern lapwing, black-tailed godwit, great snipe, common snipe, aquatic warbler, Eurasian curlew.

Undoubtedly cultivating traditional agricultural methods as well as reducing the pressure which developing cities put on agricultural lands will be extremely difficult nowadays. We should hope that increasing ecological awareness in society supported by decision-making institutions will allow to keep these ecosystems available for birds. We should remember that their presence not only is a pleasure for our eyes but also it affects the proper functioning of these ecosystems (e.g. western marsh harriers and common buzzards reduce the quantity of rodents consuming grain seeds) which are very vulnerable to any disorders due to impoverished number of species. Bird-friendly places are such lands where they can safely live, raise offspring, where they have access to food and a shelter. We should then take care in order to keep as many bird-friendly lands as possible.





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BirdWatch Ireland is a non-governmental organization with a public benefit status, dealing with the protection of wild birds and the places where they live. The aim of the Society is to preserve the natural heritage for the benefit of present and future generations. BirdWatch Ireland is the Irish partner of the global federation of bird protection societies - BirdLife International.



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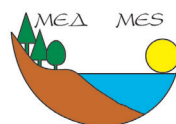
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