

Layman's Report:

" Osprey conservation in selected SPA Natura 2000 sites in Poland"



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Fot. Cezary Korkosz

1. Summary of project implementation

The project entitled: " Osprey conservation in selected SPA Natura 2000 sites in Poland " was implemented in 2016-2021. The beneficiary of the project was the General Directorate of State Forests and the Eagle Protection Committee.

Responding to the identified threats to ospreys, we conducted activities to increase the food base and safety of the birds in water bodies, also increasing the number of potential nesting sites by installing artificial platforms on trees and high voltage poles. Our project also had an important educational dimension, which was implemented through workshops for stakeholders, educational competitions and information activities in the media. The project had an impact on public awareness regarding nature protection with particular emphasis on the problem of protecting birds of prey. In the implementation of the project, apart from the team of DGLP and KOO, about 100 people were involved, including employees of the State Forests, expert ornithologists, ichthyologists, volunteers and officials.

The project has significantly supplemented the knowledge of ornithologists about the osprey population in Poland. Monitoring activities initiated thanks to the start of the LIFE project and continued in 2018-2021 have contributed to a significant increase in knowledge of methods to carry out further protection of this species. The answers obtained regarding threats to the population and methods of their mitigation will result in improved living conditions for the birds.

The established group of project volunteers as well as foresters and employees of the State Forests participating in the project constitute a committed group of people who will continue to support osprey conservation in the long term.

The installed platforms on poles and in trees will serve the birds for many years to come. Some of them may be occupied and some may become additional nests, which will be used by the birds occasionally. This is a key measure to bring about a significant change in the osprey population, as mounted platforms on high voltage poles should attract the German population of this species.

2. Background of project implementation

The Osprey is one of the rarest breeding birds of prey in Poland. The species is listed in Annex I of the Birds Directive and in the Polish Red Book of Animals, where it has the status of VU - vulnerable to extinction. According to the current regulation on the protection of animal species, the Osprey requires active protection. Currently in Poland, it is a very rare species with a high threat status, for which the maintenance of a stable population requires rescue measures.

Osprey is a cosmopolitan species nesting on almost all continents. In Europe it nests from Scotland, through Scandinavia, eastern and northern Germany, Poland, Belarus, Lithuania, Latvia and Estonia, to extensive areas of Russia. Small populations also occur in France and on some islands in the Mediterranean Sea. On the Old Continent, 90% of the population is found in Sweden, Finland, Norway and Russia, where about 9,000 pairs nest together. Strong populations are also found in Germany and the UK (together about 1,000 pairs). Other extensive breeding areas are found in North America, Australia and Oceania.

A significant decline in the number of ospreys in Poland occurred at the beginning of the 20th century. This was the period of the beginning of the improvement and spread of firearms in many social groups. Consequently, it was a time of extermination of all species of birds of prey considered to be "pests". In Silesia alone, up to 30 ospreys were killed every year during this period. In many countries, including Poland, the extermination of a large number of species continued until the second half of the 20th century. In addition, in the second half of the 20th century, the widespread use of pesticides, mainly DDT, in Europe caused huge losses in the populations of many birds of prey. Many harmful pesticides and other toxic substances were then run off from fields and factories into the soil and water,

poisoning fish - the only food of the osprey. This caused a disruption in calcium metabolism in female raptors, reducing shell quality and leading to loss of broods.

Gradually, since the early 1970s, there has been a visible recovery of the Eurasian osprey population. The use of DDT has been reduced or phased out in many countries, and long-term research and conservation projects have been initiated that have contributed significantly to the species' abundance. In the UK (Scotland), after being extirpated in the early 20th century, the first breeding was recorded in 1954. After 20 years there were already 14 breeding sites, and ospreys have become a global symbol of conservation. Between 2000 and 2014, there was a rapid increase in the European osprey population in almost all countries; in total, more than 1300 pairs arrived (Table 1). Birds have returned to Portugal, Denmark and Wales and England over the past 15 years. The highest increase in abundance during this period was in Norway (+53%), very high in Germany and the Scotland and in Sweden.

The only and at the same time very strong declines in abundance between 2000 and 2014 were recorded in three neighbouring countries: Ukraine, Poland, and Lithuania.

The causes of the decline in the osprey population between 1990 and 2014 are attributed to three issues?

1. Reduction of food stock.

Previous analyses carried out by the Institute of Inland Fisheries indicated that optimal feeding conditions for the osprey were lacking in many regions of Poland. This could be due to insufficient feeding base in lakes resulting from overfishing of many lakes due to intensive fishing and the common habit of people in Poland to catch fish for consumption. A serious problem may also be inadequate water clarity caused by eutrophication of lakes, which periodically may reduce hunting success and, consequently, nesting success of the osprey.

2. Persecution on feeding grounds.

Due to the frequent use of fish breeding ponds by birds, both breeding individuals and several thousand birds from the Scandinavian population flying through our country, some breeders do not tolerate their presence. Repeated reports of scaring fish-eating birds, including ospreys, indicate that this species is under strong human pressure. Reduction (illegal shooting) of ospreys may be a limiting factor (M. Bielewicz 2013). The above information confirms the data collected for many years by the Eagle Protection Committee, which prove that migratory birds are the most numerous victims of illegal shooting.

3. Lack of optimal breeding sites.

Ospreys require very old and high trees for nesting or, if there are none, other such places from which they have a good observation point and easy access. For this reason, nesting on electricity pylons is also quite common in Poland (approx. 15%). The active protection of ospreys in Germany focuses on the preparation of artificial nests for ospreys on electric poles. Currently an estimated 75% of the German osprey population nests in such places. In Finland, 40% of the osprey nests are located on tree platforms specially set up for them.

3. Project objectives:

The aim of the project was to cover detailed and comprehensive protection of all osprey *Pandion haliaetus* sites in Poland in Natura 2000 network areas. The short-term goal of the project was to halt the decline of the osprey population and then achieve a 25% increase in the osprey population between 2014 and 2021.

The project objective has been achieved through the following stages:

- Identification of all osprey sites and factors posing a threat to them in all sites in Poland located in Natura 2000 SPA areas, together with an analysis of factors limiting the occurrence of ospreys in Natura 2000 SPA areas.
- Provide special protection to all known sites by establishing a network of nesting and site caretakers.
- Satellite monitoring of 15 osprey for 3 years.
- Restoration of osprey sites through construction of 232 new nests on trees and 50 nests on high voltage poles.
- Increase the foraging base in their fisheries in Natura 2000 SPA areas in Poland and increase the knowledge of lake and pond managers.
- Close international cooperation is established by using knowledge and experience from Germany, Sweden, Finland and Scotland and transfer of best practices to Lithuania. Two international conferences and 3 workshops led by foreign experts were organised to increase knowledge of best osprey conservation practices abroad.
- Development of guidelines for inter-institutional cooperation to detect or prevent Wild Life Crimes.
- Development of guidelines for sustainable fisheries management in osprey areas.
- Development of guidelines for the protection of osprey for Central and Eastern Europe.
- Increased public awareness of the occurrence and biology of ospreys in Poland through competitions for children, specialized training and a media campaign promoting the project and osprey conservation.

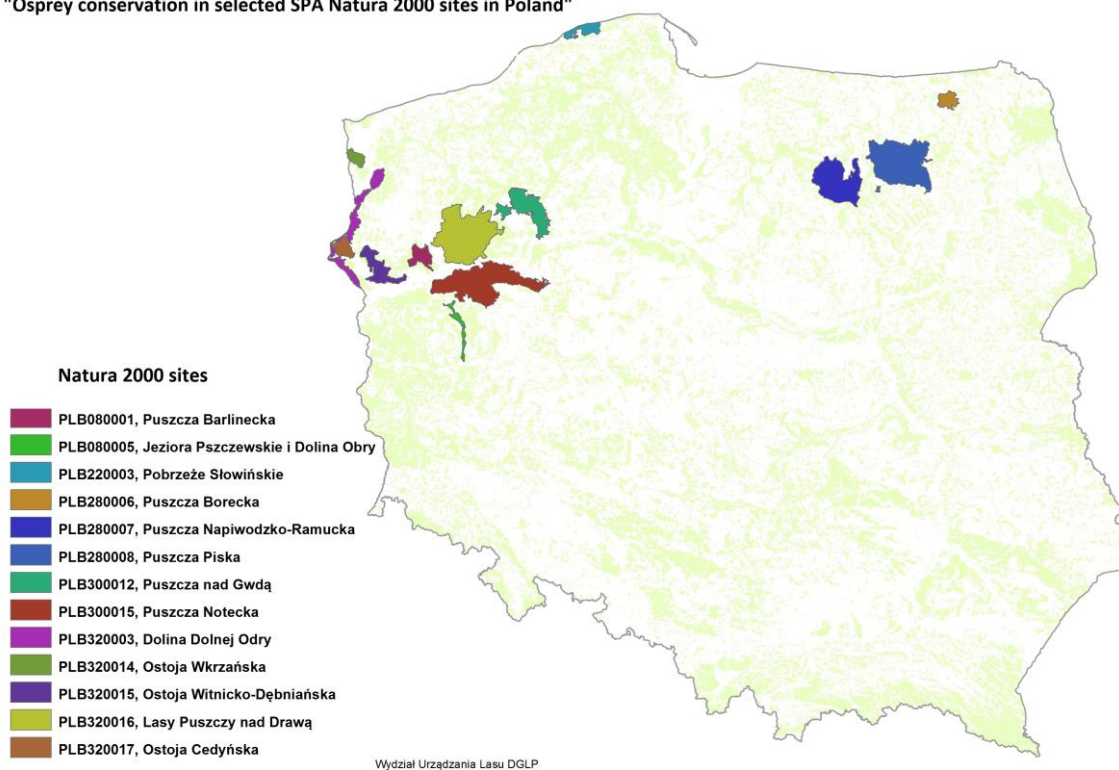
4. Project implementation area:

The implementation of the field activities was carried out in the selected 12 Natura 2000 areas. The areas selected for the project are characterized by a mosaic of habitats, a significant proportion of multi-aged forest areas with a high proportion of lakes and farm ponds.

All areas where the project will be implemented are Natura 2000 sites under Directive 2009.147/EC called the Birds Directive (SPA). In each SPA Natura 2000 site, osprey are listed in the Standard Data Form.

1. Obszar PLB320003 Dolina Dolnej Odry
2. Obszar PLB320017 Ostoja Cedyńska
3. Obszar PLB320014 Ostoja Wkrzańska
4. Obszar PHB320016 Lasy Puszczy nad Drawą
5. Obszar PLB320015 Ostoja Witnicko-Dębniańska
6. Obszar PLB080005 Jeziora Pszczewskie i Dolina Obry
7. Obszar PLB080001 Puszcza Barlinecka
8. Obszar PLB300012 Puszcza nad Gwdą
9. Obszar PLB300015 Puszcza Notecka
10. Obszar PLB280008 Puszcza Piska
11. Obszar PLB280006 Puszcza Borecka
12. Obszar PLB280007 Puszcza Napiwodzko-Ramucka

The area of implementation of the project
 "Osprey conservation in selected SPA Natura 2000 sites in Poland"



Map 1 – the area of implementation of the project:

5. Implementation of the LIFE Project measures

The implementation of the project involved the identification and subsequent implementation of measures to prevent threats to the osprey population.

The project activities were primarily focused on a complete understanding of all aspects of the functioning of the osprey population in Poland and on the prevention of identified threats to its population. Therefore, monitoring of osprey habitats, video monitoring of nests and research on migration of ospreys to wintering grounds were initiated.

Realised actions and measures

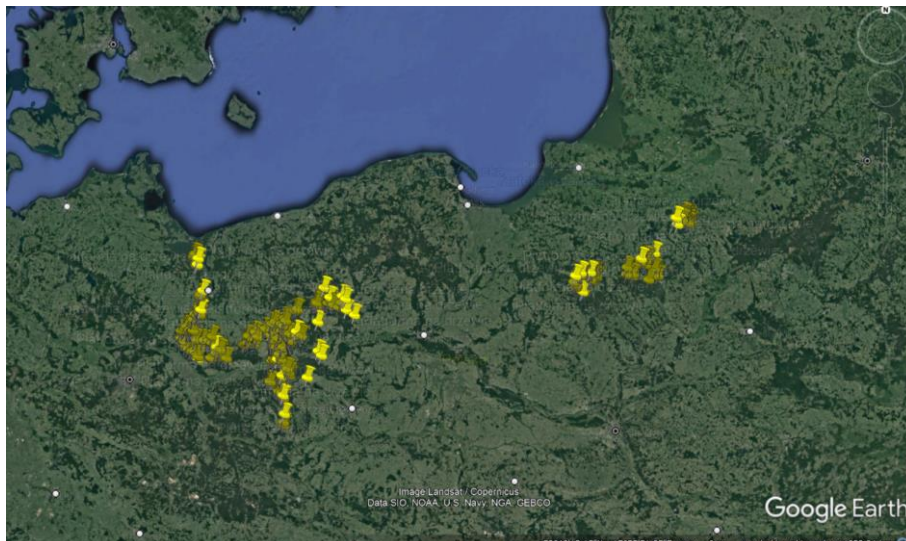
1. Analysis of osprey sites

A detailed analysis of the osprey sites divided into modern, historical and potential sites was carried out. Contemporary sites are defined as active breeding sites of ospreys according to data collected by the project partner - the Eagle Protection Committee - during the preparation of the project (up to 6 years back). Historic sites are sites where ospreys were present between 6 and 10 years back. Potential sites are sites identified by ornithologists as suitable for the establishment of new territories. A comprehensive analysis of sites where ospreys occur or breed has been carried out. The verification included nest trees, the habitat surrounding them and the place constituting the food base, which in the case of ospreys usually means water complexes located up to 10 km from the nest. Biocenotic trees were also identified: resting and alternative trees, which can provide a place for new nesting. Threats to the species in a given habitat were also analysed, taking into account the impact of human activity, biotic and abiotic factors present in the habitat.

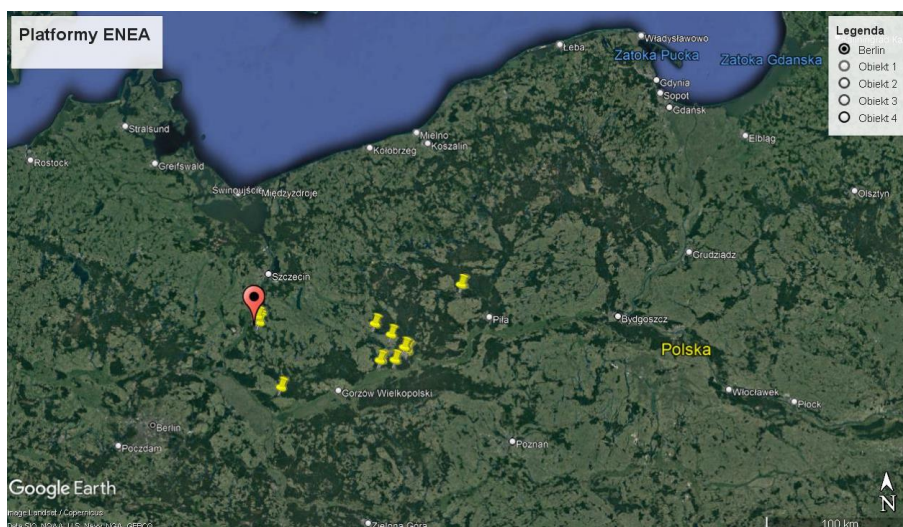
All data were included in the so-called Passports, individual documents for each of the active sites. These studies were submitted to Regional Directorates for Environmental Protection, where the mentioned sites are located. A total of 33 passports were produced for the project. Additionally, 45 protection zones of osprey breeding sites were analysed. There are more protection zones than existing sites, because there are zones established many years ago where ospreys have not been observed for many years.

2. Installation of artificial nests in trees and installation of nesting platforms on poles

The project involved the installation of artificial nests on trees adjacent to the nesting sites. First, active nesting sites were strengthened. The new platforms provide an opportunity to change the nest and thus choose a better location for the nest. Further on, alternative nests were created both for pairs currently breeding and new ones, which, according to experience from other countries, tend to settle near old sites. A favourable factor is the philopatry of male ospreys, consisting in a strong instinct to return to the vicinity of their birthplaces in order to breed. In total, the project installed 232 nests on trees and 50 nesting platforms on high voltage poles.



Map 2 – localisation of tree platforms



Map 3 – localisation of the platforms on electric poles

In many populations (USA, Germany, Australia), there has been an effect of "imprinting" birds on various types of structures of anthropogenic origin, which are used successfully for breeding. In the former German Democratic Republic, about 70% of breeding takes place in nests placed on high-voltage line poles (Meyburg et al. 1996). We hope that a similar trend will occur in Poland in the following years.

3. Improvement of feeding base of ospreys through intensified stocking of waters in located fisheries

In order to determine the abundance of lakes that constitute the feeding base of ospreys, an analysis of the ichthyofauna located in osprey fisheries was conducted. The analysis covered 33 lakes. Additionally, an analysis of fishing management was made for 33 fish ponds.

Based on the performed ichthyological analysis of the lakes, 13 lakes were selected for additional restocking with appropriate fish species constituting the main food of ospreys. This activity was implemented together with managers of lakes where ospreys feed. The species released were of such size and weight that they were attractive prey for the ospreys. Pike, zander, tench and carp were introduced, which are species that are the most common prey for ospreys and have a positive influence on the structure of lake ichthyofauna. In total, more than 2 tonnes of fish were released in 13 lakes. This measure increased the feeding base and at the same time the attractiveness of the habitat, which may increase the productivity of pairs by improving the survival of more chicks in these regions. The impact on population growth in the area of the selected 13 lakes and nestling abundance will be monitored in the following years after project completion.

4. Establishment of a network of local osprey site caretakers

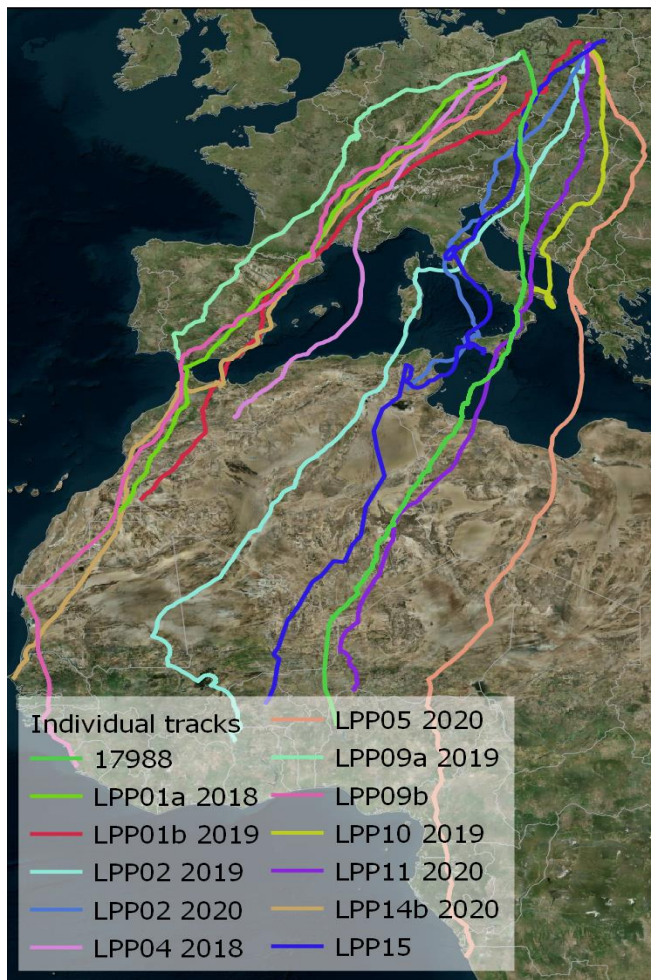
We have established a group of 40 volunteer osprey site maintainers. As an incentive and indirect refundation, ornithological workshops were organised for the keepers during which they gained specialist knowledge about ospreys and other raptors. Each local caretaker was in constant contact with an ornithologist from KOO who performs monitoring within the framework of Rare Species Monitoring of the Chief Inspectorate of Environmental Protection.

The main task of the caretakers was to identify possible threats in the regions of occurrence of ospreys, mainly in fisheries. Examples include excessive and inconsiderate tourism, economic works, development of lake shores, water pollution, construction of windmills on the line between breeding grounds and fisheries. Each supervisor was obliged to visit potential osprey feeding grounds once a month during the breeding season, i.e. from the beginning of March to the end of July. Thanks to local guardians, constant control over the site was ensured. The site caretaker together with an ornithologist from KOO directly inspected the nest to assess its condition and breeding success. Approximately 30 caretakers will continue their tasks in the after LIFE period.

5. Osprey monitoring with loggers and phototrap

So far, no research has been carried out in Poland to determine flight routes to wintering grounds of ospreys nesting in Poland. Current technical capabilities provide a chance to precisely track the migration of ospreys during annual autumn and spring migration and their wintering grounds. In the project 15 satellite (gps) loggers were purchased and installed. The loggers were mounted on 21 birds

in total, of which the migration routes of 14 birds were known. Data analysis provided answers to many important questions about ospreys, their migration routes and causes of mortality during migration.



Map 4 – migration routes of ospreys from Poland

The second activity required to conduct effective threat analysis is the phototraps that have been installed at the nesting sites. Photographs from the photo traps have been collected since 2018. The collected material enabled a detailed analysis of breeding phenology, food composition and the various reasons for lack of breeding success. Thanks to the photo traps, pressure from other birds of prey such as hawks and with-tailed eagles was observed.

6. Conducting training and meetings with international experts

The project carried out two meetings for ornithologists and conservation officers with the participation of foreign experts in order to establish closer international cooperation. An international conference with experts from Germany, Scotland, Estonia, Finland and Latvia was also organised. Two workshops organised during the project with experts from Germany, England, Estonia and Italy dealt with the implementation of measures to further develop osprey populations using high voltage poles, analysis of mortality and threats to ospreys and nest assembly. Discussions on monitoring were also particularly valuable.

7. organisation of workshops for owners and managers of water areas

During the implementation of the activity, meetings were held with owners of breeding ponds and managers of lakes near which osprey sites are located. The meetings were aimed at increasing the knowledge on the use of breeding ponds and lakes by ospreys. Threats to the osprey in commercially used water bodies were presented. The workshops were conducted by specialists in sustainable fishery management and by ornithologists. 3.

8. Educational and communication activities addressed to children and young people

In order to increase the knowledge of children and young people, two competitions on the knowledge of ospreys were held for pupils of primary schools. Several dozens of schools from the areas covered by the project participated in the competitions.

Teaching materials in the form of manuals on osprey protection were addressed to primary schools, both those participating in the competitions and others interested in the project activities. Additionally educational scenarios were prepared, which are useful materials for teachers who would like to conduct educational classes for children on the protection of birds of prey and ospreys.

9. Additional information and promotion actions

In order to increase media interest in the project, increase public knowledge about the osprey and the project activities, many additional promotional activities were carried out which were not described in the project. These activities resulted from communication strategies with target groups. The strategies prepared in cooperation with experts from the Information Centre of State Forests specified which activities and to whom they should be addressed within the project. Among the activities the most interesting and most widely publicised was the preparation of a film about the project, which was broadcast on Channel 1 of the Polish Television, and a mural depicting an osprey. The mural was created in Piła, because there are 4 osprey stations in the vicinity of this town.

6. Results achieved by the project

The implementation of the endangered species protection project requires time and patience before it is possible to demonstrate the environmental effects of undertaken actions. In the case of such a rare species, which in Poland stays on the edge of sustainability of the population, each factor, often independent of human activity, may have a negative impact on the population size.

We also gain a significant increase in knowledge about the osprey population in Poland, conditions and threats they face. Research on osprey migration or their food base are of great importance for further activities towards protection of the species. The analyses of mortality, especially deaths caused by other birds of prey are groundbreaking.

Results quantified - indicators of achievement of results

- a. Development of guidelines for the protection of the species in Poland and development of guidelines for the protection of the osprey in Central Europe.
- b. Installation of 50 nests on high voltage line poles and 232 nests on trees.
- c. Analysis of the feeding base demand in the area of occurrence of the osprey through detailed monitoring of 33 lakes and 33 ponds and analysis of fishing management plans.
- d. Migration routes for ospreys obtained through installation of 15 gps loggers.
- e. 2 school children competitions.

- f. 10 workshops for fishermen organized and guidelines for sustainable fishery management in the vicinity of the osprey habitat developed.
- g. Guidelines for preventing poaching of endangered birds of prey species.

Summarising results from the monitoring carried out during the project, we believe that the implementation of the project has significantly contributed to the improvement and increase in the status of the osprey population in Poland. At present, the achievement of the project is stopping the decrease of the population and reversal of the trend of ospreys population. Osprey abundance started to increase from 2018. We count 25% increase in number of ospreys sites until 2021. We hope that this will be a trend in the following years. Counting osprey sites where at least one bird was observed the number of occupied sites increased by 53% between 2014 and 2021.

This gives optimistic assumptions for the future regarding further trends in the osprey population in Poland. We assume that the activities started in the project will be effective in the following years, which means that the population of the osprey will continue to grow.