THE AQUATIC WARBLER

A bird which needs a human

EXPERIENCE GAINED WHILE PROTECTING
THE RAREST SINGING BIRD IN EUROPE

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The aquatic warbler: a bird which needs a human: experience gained while protecting the rarest singing bird in Europe

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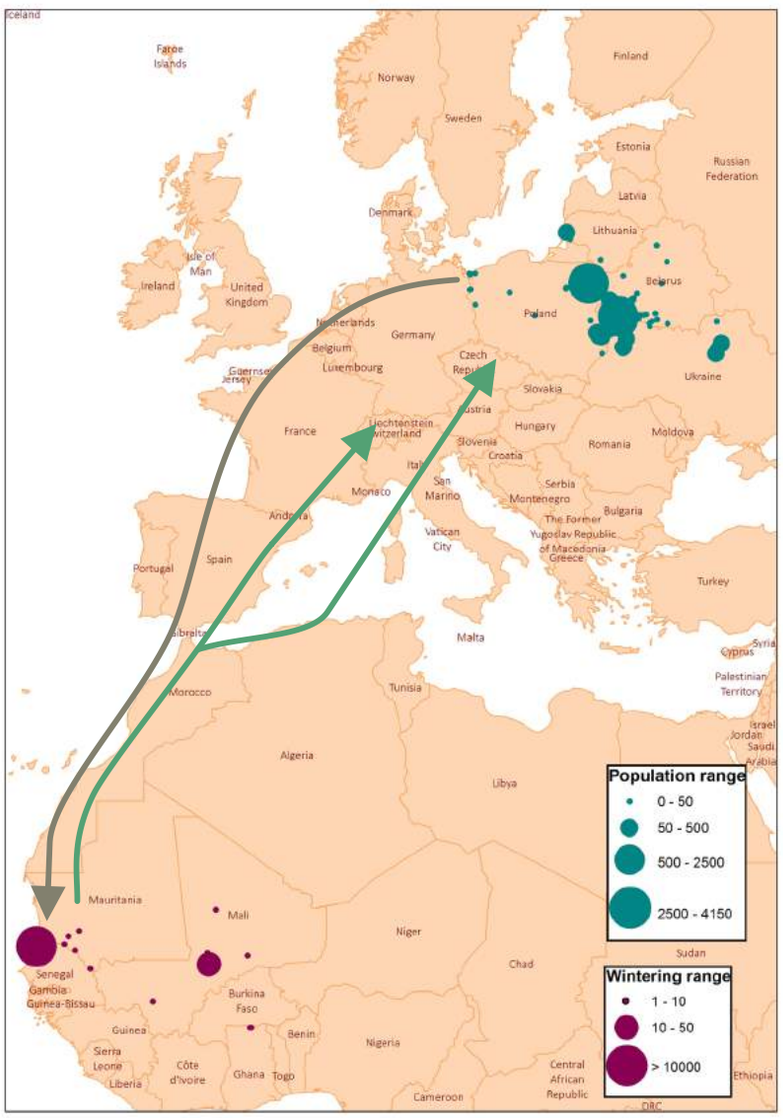
CONTENT

1. Why do we need to protect the aquatic warbler?

At first sight, the aquatic warbler seems to be an ordinary, sparrow sized bird whose song is simple and not irritating. However, this bird is also the rarest singing bird in continental Europe, is included in the list of threatened species, and is the only passerine in Lithuania which is under a real threat to be eradicated from the planet.

The population of once quite common bird of European wetlands reduced as much as by 95 percent over almost one hundred years and now these birds breed in only 5 countries in the world: Lithuania, Poland, Belarus, Ukraine and Germany. The major cause of the drastic depopulation was the intense drainage of wetlands in the XX c. which resulted in the destruction of habitats suitable for the aquatic warbler. In order to rectify the mistakes made in the past and give our children a possibility to admire a romantic song of the aquatic warbler and a unique life of this little bird, we need to take care of the protection of this bird.



Aquatic warbler distribution range

Autumn migration routes

Spring migration routes

The aquatic warbler is a very specific species which lives only in special wetlands. Due to its special needs in respect to its habitat, naturalists also call it the umbrella species – this bird's song indicates that the environmental conditions in that territory are also favourable for many other rare species. The conservation of the aquatic warblers leads to the creation of conditions favourable for the orchids, the great snipe, the citrine wagtail, short-eared owls and other species.

All life forms on Earth are entangled into one complex system where each species plays a special role in maintaining the general balance of this web. Although we, humans, have not fully understood this system, experience shows that the extinction of species disturbs the balance and causes largely unpredictable and unwelcomed consequences. In order to avoid that, we need to ensure the protection of all species. Nevertheless, the aquatic warbler and other endangered species facing the greatest threat require immediate help and exceptional attention.

LIFE + project poster illustrating the links between aquatic warbler and the other species living in the same environment
Designer M. Karpavičiūtė

The beginning - LIFE + project planning meeting in 2009

2. Why is it special?

The aquatic warbler is a bird which is a little bit smaller than a sparrow, weighs only 11 grams and has no bright colours or any other distinguishing features. But its simple look hides an extraordinary life style and unique traits of this bird.

The breeding of the aquatic warbler is very interesting. These birds do not mate for life. Both males and females enter into a new romantic relationship over and over again and mate with different partners. Research shows that in almost 60 percent of nests there are fledglings from 2 or 4 different fathers. In the presence of danger a male may warn its flock, but it does not contribute to the rearing of the offspring- which includes building a nest, incubating the eggs or raising the young. All these tasks are done by females. During the breeding season the main task carried out by males is to declare their advantage by singing and to mate. Such an unusual relationship is only logical and reasonable in a marsh. Such breeding allows the aquatic warbler to maintain a genetically strong and viable population for a long period of time, even in isolation from other birds of the same species, and to spread quickly once favourable conditions are created in a relatively unstable habitat.

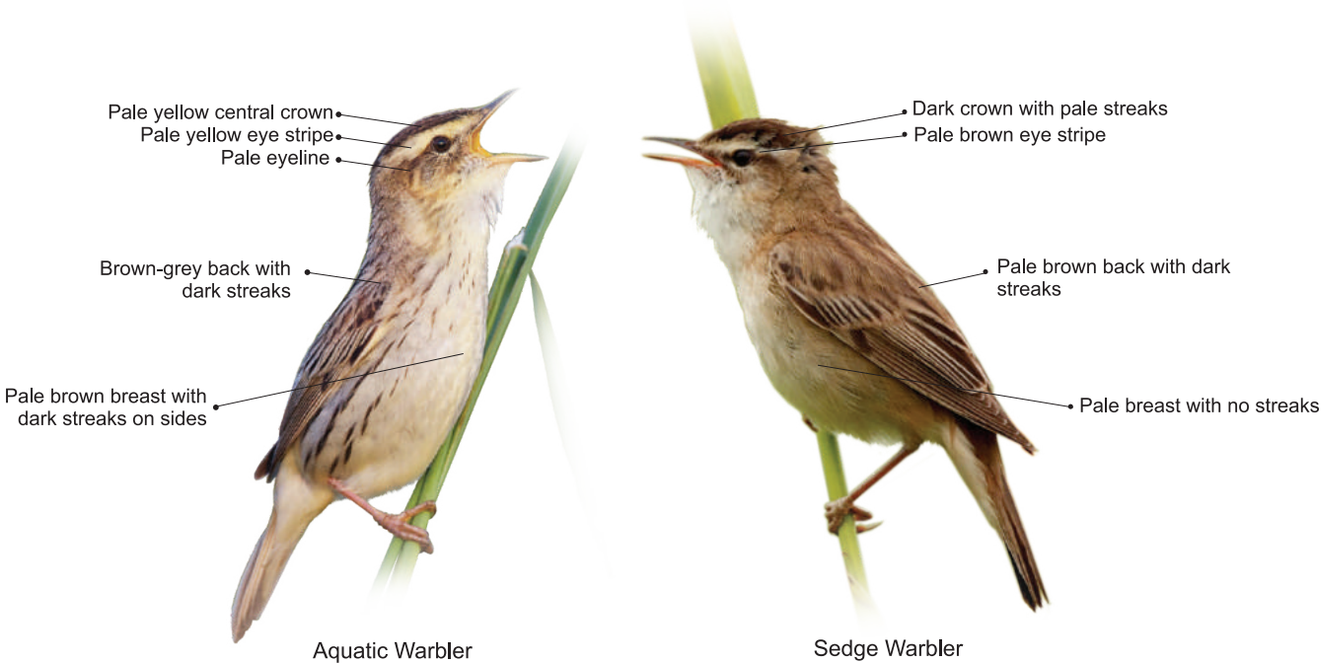
In one season the females have two broods and raise the young alone. In order to feed the young they need to bring to the nest a full beak of spiders, mosquitos, flies, grasshopper or other insects several hundred times a day. Thus, in search for food for their young, the females usually fly only approximately 30 metres from their nest and therefore the nearby surrounding area must meet high requirements – it must provide plenty of food. Large amount of food is secured from specific vegetation and due to fluctuation of water levels – during the cold season a wetland suitable for the aquatic warbler must be covered by water where insects can reproduce and old vegetation decomposes, whereas during the breeding season the water level must drop below the land surface. This is a typical rhythm of a sedge fen mire. As a result of the unique lifestyle of the aquatic warbler, another condition is very important for its habitat – a large area of such environment where a lot of these birds could live. Therefore, an ideal habitat of this demanding bird is a large area of open mesotrophic and slightly eutrophic wetlands where the sedge prevails.

During the breeding season under extremely unfavourable weather conditions (heavy rain, sudden drop of temperature, etc.) it becomes difficult for the females to find food for the young. However, these birds have a unique trait present only in few other bird species – hibernation. The aquatic warbler may simply slow their vital functions and "resurrect" and continue to grow and develop successfully once the unfavourable conditions are gone.

The male aquatic warblers have one extraordinary trait. One of the strategies to survive in isolated populations is to produce many offspring. Apparently for this reason testicles of the males are unusually big and may be considered as one of the biggest testicles in the world of birds. If a man had such testicles, they would be a size of big watermelons.

3. How to recognize it?

This sparrow size bird is very similar to its commonly found *cousin* – the sedge warbler. The aquatic warbler differs from the latter in having paler feathers and a pale yellow pronounced strip on its head running from its beak to the top of the head. Similar strips are present on the back in the area of shoulders. The plumage of both sexes is practically identical. The fully-fledged juvenile birds are similar to the adults but they do not have spots on their sides.



Distinctive features of Aquatic Warbler and Sedge Warbler

4. In decline due to loss of home

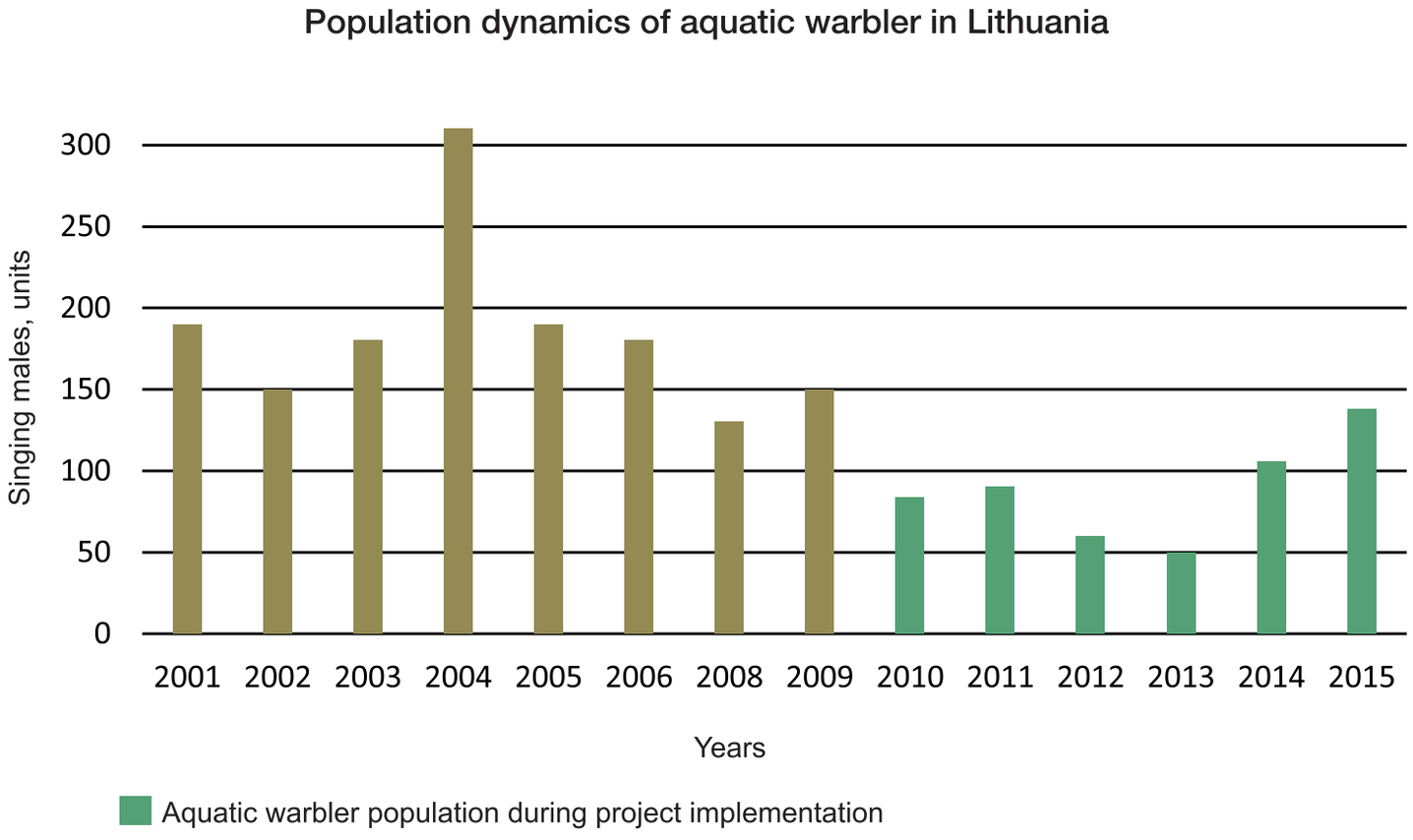
The loss of habitat is the major reason why the aquatic warbler, as well as other protected bird species, are in decline. In the XX c. a large part of the territories in Europe suitable for the breeding of the aquatic warbler was drained and the remaining areas were often used too intensively (fertilized, farmed by mowing or intensive grazing) or abandoned entirely. Many birds are also lost as a result of the destruction of their habitats in wintering grounds. In the most crucial wintering site of the aquatic warbler – the delta of the Senegal River – the favourite habitats of these birds are replaced by rice and sugarcane plantations and the remaining natural vegetation suffers from droughts, intense grazing and salinization of drained lands.

In Lithuania habitats of the aquatic warblers are in decline and the state of habitats is deteriorating as a result of the unfavourable hydrological regime during the period of breeding, drainage or flooding of such habitats (premature or delayed water pumping from the polder systems); intensive farming (early mowing, grazing, fertilization, reseeding of grass, etc.); complete termination of farming activities.

5. Main achievements of the project

The project "Securing sustainable farming to ensure conservation of globally threatened bird species in agrarian landscape" was carried out from 2010 to 2015 and covered a wide spectrum of activities. The project team applied classical nature conservation methods when restoring abandoned habitats of the aquatic warbler and together with farmers searched for the most suitable farming conditions in the intensively mowed meadows in the polders of the Nemunas delta. During the implementation of the project the team upheld the principle that the aquatic warbler conservation measures must not harm the interests of the farmer. After all, a farmer who is farming in harmony with nature is the essential precondition for this endangered bird to survive!

The results of the project were best evaluated by aquatic warblers themselves – these rare singing birds began to breed in the vast sedge meadows restored during the project. Although we do not measure the success of the project in the increasing number of aquatic warblers, we are pleased that the declining tendency which lasted for many years has been changed and starting from 2014 we witness the slowly growing population of these birds in Lithuania. This is undoubtedly the successful result of the common work done by the naturalists and the farmers.



Over 1400 ha of habitats have been restored

During the implementation of the project the restoration of the crucial habitats of the aquatic warbler was successfully carried out in the territory larger than the area of Šilutė town. Reed beds and bushes that were spread in the abandoned habitats were removed, the areas were mowed several times and the excess biomass was taken away. A nature management measure widely used abroad – burning of biomass – was tried in a small territory. Further works are discussed by reviewing the project territories individually.

Tyrai marsh in Kliošiai landscape reserve

For many years this territory has been considered as the main breeding ground of the aquatic warbler in Lithuania. Before the project started, no farming activities were carried out here, the waters of the Curonian Lagoon were fertilizing the area with dissolved nutrients and the major part of the territory was reedy. The area was mowed every year (the works were carried out in the area of 475 ha) in order to weaken the reeds and stimulate the growth of sedges suitable for the aquatic warbler. After a while the aquatic warblers began to breed in the previously abandoned areas and the restored vastness of Tyrai marsh became a significant site for many birds which breed or migrate here. In order to reduce the amount of nutrients that get into the marsh, a line of reeds, approximately 50 meters wide, was left alongside the lagoon. The reeds provide a home for reed-dwelling birds which live here.

During the project implementation

After the project

Tulkiaragė polder

This is one of the oldest polders in the delta of Nemunas. A stone-paved road – a pavement – which is a remainder of the indigenous people who lived here long ago – grassland farmers – can be seen in the open areas nearby the road which leads from Šilutė to the polder. Following the break of embankments in Soviet times, this territory was abandoned and eventually was densely covered by reeds and by bushes in some places. During the project the area in Tulkiaragė was repeatedly mowed and the broken embankments were restored. As a result of the nature management works (carried out in the area of 450 ha), the area of reeds was significantly reduced and sedge meadows as well as meadows dominated by other communities began to form. Now much greater diversity of birds can be seen here. The naturalists hope for the return of the aquatic warbler, which used to breed here, in the future.

Before the project

After the project

Šyša polder

The aquatic warbler was first spotted in this polder in 2004 but it is possible that these birds settled here much earlier. Although the major part of the polder area is intensively used by local farmers, a part of the flooded meadows that are suitable for the aquatic warbler were abandoned long before the project started. The area which has not been mowed for several years was covered with a thick layer of dead grass, the vegetation changed and the fragments of the habitat were unsuitable for the aquatic warbler to breed. During the project the respective area was repeatedly mowed (the total mowed area was 100 ha). Innovative machinery specially designed for works in wetlands which allows mowing even in the periods of high water level was used to do the works.

Habitat restoration during the project

After the project

Žuvintas marsh

The fen mires surrounding Žuvintas lake have long been known as the habitat of the aquatic warbler. When over time local farmers stopped mowing the sedge meadows there, the aquatic warblers subsequently left this place which eventually was covered by reeds and bushes. During the project various habitat restoration works were carried out in the area covering over 270 ha. The bushes were removed and the reeds were cut. The experimental burning of vegetation was also attempted. In order to establish the water level dynamics more suitable for sedges, the abandoned drainage canal, which runs through Kiaulyčia marsh was cleaned.

Before the project

After the project

Latvia habitats in the surrounding of Pape and Liepaja lakes

Following the successful restoration of the population of the aquatic warbler in Lithuania and with the population range widening, it can be hoped that for these rare birds will also return to Latvia to breed again. It is for this reason that during the project the abandoned habitats in Latvia where the aquatic warbler used to live were attempted to being restored to those closest to the breeding sites in Lithuania.

The aquatic warbler juvenile birds are regularly spotted in the areas surrounding Pape lake but no breeding birds of this species have been registered so far. It is possible that these birds come from the breeding sites in Lithuania. During the project 22 ha area of abandoned habitats was rid of dense bushes. Necessary mowing was done in the area as well.

In the surrounding areas of Liepoja lake there are fen mires whose fragments are a sedge undergrowth typical of the habitats of the aquatic warbler. Due to extremely difficult natural conditions and changing farming practice, these wetlands were eventually abandoned and covered by bushes and reeds. During the project 97 ha area of the marsh was mowed with the help of special machinery. The carried out mowing works enabled to maintain the habitat important to various species of birds in the future. Each year the Latvian ornithologists come here in the hope to hear a song of the aquatic warbler.

Before the project

After the project

Different habitat restoration measures and methods used

During the implementation of the project various habitat restoration measures and technical solutions were applied and a considerable amount of experience and knowledge about the aspects and effect of their application have been gained. The main principles applied and technical measures used are discussed below.

Weakening of reed beds

Over time the habitats of the aquatic warbler that have not been mowed for a long period of time became densely covered by reeds. In order to restore the sedge communities, intensive mowing of reeds adjusted to the growth speed of reeds and removal of biomass were applied. The first mowing by the project team was carried out when the reeds reached their full height and started to form flower heads and then mowing was repeated at the end of the vegetative season. As a result of such a regime, the reeds are not able to accumulate enough nutrients in their root system as all energy is wasted on growth and production of seeds. Next year the reed stems were significantly weaker and lower. Over time the reed beds gave way to sedges. In order to protect the nests with juvenile reed-dwelling birds, the first mowing was delayed until the majority of these birds left their nests.

Controlled burning of biomass in frozen fen mires

This method is still controversial, though in some countries it is considered as an effective means of removing biomass which replenishes the habitat with minerals and does not harm the biological diversity. However, this method requires special climatic conditions that are rare in our region. It is necessary to ensure that the underground portion of vegetation – root system – as well as the species which spend their dormancy period there, are safe under ice but a layer of snow should not be thick. During the burning process there should be a light and not gusty wind blowing in the required direction. The project specialists admitted that such method of managing habitats may be considered only if no other usage of biomass is available. The controlled burning tried during the project was good for the habitats and the experience gained was used for further environmental solutions.

Use of special machinery for restoration of habitats

Mowing of reeds and sedges in swampy wetlands was a huge challenge for the project team. The main works were carried out after adding special dual wheels to a tractor and the mowing was done with the help of mowers fitted in front and in the back of the tractor. Such a technical solution resulted in less damage to habitats, because wider wheels reduced the damage done to sod and a greater working width (6 metres) allowed the project team to finish the works faster with less driving.

A special motor mower for cutting reeds Seiga and a two-wheel tractor Brielmaier were used in more swampy places. Brielmaier not also succeeded in swampy reeds in the delta of Nemunas but also was irreplaceable when working in the island of Žuvintas lake due to its mobility.

Walk-behind mower “Brielmaier”

Reed cutting machine “Seiga”

New agri-environmental measures were developed for the farmers protecting the aquatic warbler

The majority of the meadows in the polders of the Nemunas delta are intensively cultivated. Mowing there starts early (in the middle of June) when the first brood of the aquatic warbler is still hatching. In order to protect these birds, it is necessary to allow them to raise both summer broods, i.e. to delay mowing in the breeding sites. However, mowing must be encouraged in other habitats important to this bird but abandoned due to difficult conditions. Farmers need an incentive to get engaged in a loss-making activity which, on the other hand, helps the aquatic warbler. A special voluntary agri-environmental measure included in the Rural Development Program for Lithuania served as such an incentive. This measure is a very important precondition for ensuring a long-term maintenance of the aquatic warbler's habitats in a good condition. This measure is applied only in the territories identified by the specialists that are important to the aquatic warbler and it lays down special terms and conditions securing successful breeding of the majority of aquatic warblers. The farmers who participate in this measure receive payments as a compensation for the losses suffered due to the restrictions. And speaking of abandoned habitats, there is a possibility to get one-off support for habitat restoration works.

More information on the terms and conditions of this measure as well as the covered territories is available on *www.meldine.lt.*

Fragment of the interactive map of agri-environmental measures

Late-cut biomass is used for the production of grass pellets

The work of nature consevationists does not end with ensuring late mowing in the habitats of the aquatic warbler, thus allowing the birds to raise their young successfully – after that, they need to find a way to use the late-cut grass which is no longer suitable as animal feed or bedding. To solve this problem the project team used the best practice of European countries when dealing with similar situations – a biomass processing facility was set up in the surrounding of Žuvintas biosphere reserve. Here the cut and rolled sedge hay is turned into biofuel pellets that are later used to heat the building of the reserve's administration direction and visitor centre. A lot of useful experience was gained from setting up this facility which would come in handy when further developing the possible uses of late-cut biomass.

Close cooperation with the farmers of the Nemunas river delta

During the implementation of the project the team upheld the principle that the interests of farmers are as important as the creation of favourable conditions for the aquatic warbler. Therefore, the project team tried to maintain close cooperation and enter into an active dialogue with the farmers of the Nemunas delta: together they observed aquatic warblers, planned mowing of wet meadows and consulted each other when developing the special agri-environmental measure. For this purpose the nature conservationists used both new and nearly forgotten means of communication.

In order to get to know personally the local people who farm in the polders of the Nemunas delta, which are important to the aquatic warbler, the project team visited the villages, talked to people and invited them to meetings. Later, they wrote letters to the farmers, giving them the most important news concerning conservation of the aquatic warbler.

The specialists registered aquatic warblers singing in the meadows by using GIS technology which allowed the team to identify the owner of the meadow easily and immediately address them with a request to delay mowing in the specific area. Constant personal communication with the farmers lead to great results – the local farmers voluntarily agreed to delay mowing in the breeding sites of the aquatic warbler 2 years in a row. After that environment protection agreements were concluded with the farmers. During the fulfilment of those agreements the application of the requirements laid down in the developed agri-environmental measures was tested.

Annual welcoming of aquatic warblers provided a great opportunity for environmentalists, farmers of the delta of Nemunas, schoolchildren and local authorities to admire the singing birds, share their problems and fears and together look for means to help each other.

The local people, experts and general public learned about the aquatic warbler

The project also focused on informing and educating the public. Observation of aquatic warblers in the meadows of the Nemunas delta, international conferences and meetings with young people in a public library and even in a night club were organized, various publications were published and a documentary film was produced. The aquatic warbler received considerable media coverage. All this allowed people to learn more about this little signing bird and eventually it became a real star of the region. This helped to bring together a circle of like-minded people and show the public how important is the help of farmers in protecting the aquatic warbler.

Information stands placed in every project territory continue to inform the public about the carried out works and the aquatic warbler. Moreover, the walking paths in Kliošiai landscape reserve and Tulkiaragė polder in the delta of Nemunas give a possibility for the visitors to learn more about the unique ecosystem, birds and farmers.

6. Future prospects

The work carried out by the project team is a significant contribution to the prevention of the aquatic warbler from declining further in the territory of Lithuania and increasing the chances of hearing the rare bird in marshes in Latvia. Nevertheless, in order to ensure long-term conservation of this bird, the farmers and the environmentalists must still do a lot of work together. The specialists agree that, first of all, the fragmentation of the current habitats of the aquatic warbler must be reduced. Currently, the isolated populations are very vulnerable and face extinction. For instance, it is possible that after one bad year some populations will not be able to restore themselves. To reduce the habitat fragmentation, many more former marshes have to be restored which will require a lot of lengthy and consistent work. It is equally important to maintain a proper mowing regime in the delta of Nemunas in order help the aquatic warbler. To achieve this goal, increased biomass processing capacities are required which would ensure greater use of late-cut grass.

Those are only a few action lines aimed at saving the aquatic warbler for future generations. The experience gained during this project, as well as the results achieved, will assist in further efforts and work aimed at reaching this goal.

In 2010–2015 Baltic Environmental Forum together with the partners carried out the project "Securing sustainable farming to ensure conservation of globally threatened bird species in agrarian landscape" in Lithuania and Latvia. The main goal of the project was to create favourable conditions for the aquatic warbler, a globally threatened bird, to breed. In this publication you will learn how the project team has fared.

More about the project: www.meldine.lt