

**Convention on the Conservation of Migratory Species of Wild  
Animals  
(CMS)**

**Action Plan Concerning Conservation Measures for the  
Aquatic Warbler *Acrocephalus paludicola***

*Minsk, Belarus, 28 April – 1 May 2003*

## CONTENTS

<b>Part 1</b>	
<b>Summary</b>	<b>2</b>
<b>Introduction</b>	<b>3</b>
<b>Chapter 1. Background information</b>	<b>5</b>
<b>Distribution and population</b>	<b>5</b>
<b>Life history</b>	<b>6</b>
<b>Breeding</b>	<b>6</b>
<b>Feeding</b>	<b>7</b>
<b>Habitat requirements</b>	<b>7</b>
<b>Threats and limiting factors</b>	<b>8</b>
<b>Change in hydrological regime in key sites</b>	<b>8</b>
<b>Breeding habitat changes due to abandonment</b>	<b>8</b>
<b>Loss of breeding habitat including drainage and peat extraction</b>	<b>8</b>
<b>Breeding habitat changes due to uncontrolled burning</b>	<b>8</b>
<b>Eutrophication by waste water</b>	<b>9</b>
<b>Eutrophication resulting from mire drainage</b>	<b>9</b>
<b>Road building</b>	<b>9</b>
<b>Unsuitable management by cutting or grazing</b>	<b>9</b>
<b>Disturbance caused by man</b>	<b>9</b>
<b>Habitat changes and habitat loss in wintering areas</b>	<b>9</b>
<b>Habitat change and loss at migration sites</b>	<b>9</b>
<b>10</b>	
<b>Conservation status and recent conservation measures</b>	
<b>10</b>	
<b>Chapter 2. Aims and objectives</b>	<b>1</b>
<b>7</b>	
<b>Aims</b>	
<b>17</b>	
<b>Objectives</b>	
<b>17</b>	
<b>1. Policy and Legislative</b>	
<b>17</b>	
<b>2. Species and Habitat Protection</b>	
<b>18</b>	

**3. Monitoring and Research**

**21**

**4. Public Awareness**

**23**

**References**

**2**

**4**

**Part 2. Recommended conservation actions by country**

**2**

**6**

## PART 1

### SUMMARY

The Aquatic Warbler *Acrocephalus paludicola* is a globally threatened species which breeds in Belarus, Germany, Hungary, Latvia, Lithuania, Poland, Russia and Ukraine. The global population is estimated at around 12,000-20,500 singing males (2002), with major populations in Belarus, Ukraine, Poland and Hungary. On migration the species has been recorded in 13 European countries, mainly in the west and south-west of the continent. It winters in West Africa south of the Sahara but little more is known about the species during winter. There is also a lack of knowledge about its habitat requirements during migration.

#### Threats and limiting factors

- Change in hydrological regime of key sites - critical
- Breeding habitat changes due to abandonment – critical
- Habitat loss including drainage and peat extraction – medium, but locally critical
- Breeding habitat changes due to uncontrolled burning - high
- Eutrophication by waste water - medium
- Eutrophication resulting from mire drainage - medium
- Road building - overall low, but locally high
- Unsuitable management by cutting or grazing - low, but locally high
- Disturbance caused by man - low and localised - unknown, potentially critical
- Habitat changes and habitat loss in wintering areas
- Habitat change and loss at migration sites - unknown

#### Conservation priorities

- Promote national and international broad policies and legislation which favour the conservation of the Aquatic Warbler and its habitat - high
- Promote adequate protection of the breeding sites - high
- Habitat management at breeding sites - high
- Promote the protection of the species and its habitat in its winter quarters and along the migration route - high

- Habitat restoration - high
- Develop and implement a monitoring programme - high
- Continue ongoing research into the species and its habitat - high
- Develop a strong network for Aquatic Warbler conservation - high
- Use the Aquatic Warbler as a flagship species - high
- Prepare educational materials to increase public awareness - high

## INTRODUCTION

The Aquatic Warbler is a specialist of large open sedge and *Cladium* fen mires, which has suffered a very severe decline in western and central Europe due to habitat loss. It is classified as Vulnerable at a global level (BirdLife International 2000) and is listed as Vulnerable in the *IUCN Red List of Threatened Species* (Hilton Taylor 2000). At the European level it is classified as Endangered (Tucker & Heath 1994). It is also included in Annex I of the EU Wild Birds Directive, in Appendix II of the Bern Convention and in Appendix I and Appendix II of the Bonn Convention.

Since the first Aquatic Warbler workshop in 1993 at Ruda Milicka (Poland), where the basis for the first version of the Action Plan was elaborated (Heredia *et al.* 1996), the knowledge of this species has increased drastically. In 1995, a series of expeditions (initiated by Martin Flade) in East central and East Europe has started to search for the last untouched fen mires and remaining populations of Aquatic Warbler, beginning in Belarus and Ukraine, followed by Lithuania, Latvia, European Russia and W-Siberia. More than two thirds of the actual known world population has been discovered only during the past 8 years. Intensive ecological research on the species has been carried out in Belarus since 1996 by Alexander Kozulin and co-workers. Furthermore, a completely new survey was done in Poland in 1997 (Krogulec & Kloskowski 1998).

Through this enormous increase of knowledge, an update of the Aquatic Warbler Action plan has become essential. For this reason, a second Aquatic Warbler Workshop took place from 30 March to 1 April 1998 at Brodowin (Germany), where the current knowledge on distribution, habitat needs, population size and trend of the species as well as threats was compiled and discussed. The workshop was organised by Martin Flade (State Agency for Large Protected Areas Brandenburg) and funded by the Royal Society for the Protection of Birds (RSPB). It was attended by experts from Germany, Hungary, Poland, Belarus, Latvia, Lithuania, Russia, Ukraine and United Kingdom. This action plan update is based mainly on the presentations and discussions held during the workshop, and additional results from the current field research in the following years (1998-2002).

Given the European scope of the project, the action plan highlights the actions necessary to protect the Aquatic Warbler on its breeding grounds in Europe. However, those countries with more than 100 records of birds on migration during the period 1879–1987 (de By 1990, Aquatic Warbler Conservation Team 1999) have also been included within the geographic scope of the plan. It is expected that, as more information becomes available, future versions of the action plan will be extended to cover the whole of the species flyway.

This action plan identifies some important areas of imbalance in our knowledge of this species, one of which is the great difference in current understanding of the species biological requirements in the breeding areas as compared with the wintering grounds. Some very good research has been done on reproduction, mating systems, and habitat needs during the breeding season, but almost nothing is known about the species during winter. Dramatic habitat changes in the Sahelian wetlands could be a very important limiting factor, but the extent to which this is affecting the population dynamics remains unknown. However there is no doubt that actual habitat loss in the breeding grounds is the key threatening factor for the species.

Some differences in knowledge also still occur within the breeding range. While occurrence and numbers are quite well known in Germany, Poland, Hungary, Belarus, Ukraine and Lithuania, our knowledge about these same aspects is not that satisfactory for Russia, especially West Siberia.

## CHAPTER 1: BACKGROUND INFORMATION

### Distribution and population

The breeding range is restricted to the western Palearctic between 47° and 59°N. Breeding occurs in Germany, Poland, Hungary, Lithuania, Latvia, Belarus, Ukraine and Russia. Possible breeding in Romania and Bulgaria has not been confirmed for the last 40 years. Population figures are given in Table 1.

**Table 1.** Breeding population of the Aquatic Warbler (Aquatic Warbler Conservation Team, unpublished).

Country	population count/estimate 1998 - 2002 (singing males)	geometric mean	Proportion (%)	Trend 1996 - 2002
Belarus	6,600 - 12,500	9,083	57.4	Fluctuating
Poland (1997/98)	2,800 - 3,000	2,898	18.3	fluctuating (E) decrease (NW)
Ukraine	2,100 - 3540	2,727	17.2	fluctuating
Hungary (2001/02)	386-700	520	3.3	Increase to 2001, then sharp decrease
Lithuania	225 - 280	251	1.6	decrease
Russia including W-Siberia	50 - 500	158	1.0	decrease
Germany	9 - 25	15	0.1	decrease
Latvia	1-10	3	<0.1	unknown
<b>total population</b>	<b>12,171 - 20,555</b>	<b>15,817</b>	<b>100</b>	decrease

The breeding distribution is fragmented because of habitat constraints. The species became extinct in western Europe during the 20<sup>th</sup> century and has declined dramatically in central Europe. It formerly bred in France, Belgium, Netherlands, former West Germany, former Czechoslovakia, former Yugoslavia, Austria and Italy (Cramp 1992).

Recent studies on genetics and on stable isotopes in Aquatic Warbler feathers show that the German/north-west Polish population is genetically separate from all other studied populations (GIESSING 2002), and that it has most probably a different, very restricted and more northerly wintering area than the other central and east European populations (PAIN *et al.* in prep). This sub-population is sharply declining, and is thought to be the last remnant of the formerly huge north German population. The west Siberian population is geographically completely separate, is most likely genetically separate too, and is probably headed for extinction. In respect of these two sub-populations therefore it is likely that there will be a partial extinction of genetic variability within the species.

**Table 2.** Main passage countries of the Aquatic Warbler in Europe.

<b>Country</b>	<b>No. of birds</b>
Belgium	up to 229 birds ringed annually
Bulgaria	up to 186 birds ringed annually
France	up to 200 birds ringed annually
Spain	up to 200 birds ringed annually
United Kingdom	20-40 records annually
<b>Total</b>	

Aquatic Warblers have been recorded on migration in 13 European countries (Tab. 2). Birds from Poland, eastern Germany, and probably the whole Belarusian and Ukrainian Polesye migrate on a westerly heading along the Baltic coast in Latvia, Lithuania, Poland and eastern Germany, then along the North Sea coast of western Germany, Netherlands, Belgium and sometimes England, thereafter heading south along the French and Iberian Atlantic coast (Schulze-Hagen 1993, Aquatic Warbler Conservation Team 1999).

Scattered records are known from the Mediterranean (as prey in nests of Eleonora's Falcon), from Bulgaria and North Turkey (Kirwan 1992) so that it seems possible, that there is another, much less frequented flyway along the Black and Mediterranean Seas.

The winter quarters lie in West Africa south of the Sahara, and include wetlands and floodplains of Mauritania, Mali, Ghana and (mainly) Senegal but little more is known about the species during winter (Tab. 3).

**Table 3.** Number of records of Aquatic Warblers in wintering sites (Schäffer & Gutteridge in prep.).

<b>Country</b>	<b>No. of records</b>
Ghana	1
Mali	5
Mauritania	2
Senegal	45
<b>Total</b>	<b>53</b>

## **Life history**

- **Breeding**

The Aquatic Warbler has an extraordinary breeding system (actual review see Schulze-Hagen *et al.* 1999) with uniparental care by the female and a mating system between promiscuity and polygyny characterised by intense sperm competition. Around 59 % of broods are fathered by more than one male. Males, emancipated of

almost all parental duties, sing and advertise throughout the whole reproductive season between early May and late July. Their home ranges average c. 8 ha, have a core area of c. 1 ha and overlap widely. Nests are built on the ground under dry sedges. Nesting aggregations can be found at sites of high productivity of arthropods. Nestling growth is owing to the uniparental care, retarded, nestlings fledge within 15–16 days. Nesting success is mostly very high, up to 83 %. Losses by predators make up ca. 11 % of nests, mainly by harriers *Circus spec.* and small mammals. Up to 50 % of females rear a second brood (Dyrzcz 1993; Dyrzcz & Zdunek 1993; Schulze-Hagen *et al.* 1993, 1995; Kozulin & Flade 1999; Kozulin *et al.* 1999).

- **Feeding**

The diet comprises mostly large arthropods of the fen mires. Arachnida, Diptera, Lepidoptera (often caterpillars), and Trichoptera form about 70 % of prey. Prey composition varies enormously due to seasonal and annual fluctuation of the arthropod fauna. Compared with other *Acrocephalus* species, the nestlings are fed with relatively large insects (Schulze-Hagen *et al.* 1989). A rich supply of arthropods in the vegetation seems to be a prerequisite for the Aquatic Warbler (Dyrzcz & Czeraszewicz 1992).

- **Habitat requirements**

The Aquatic Warbler is a habitat specialist. During the breeding season it occurs mainly in sedge fen mires and similarly structured marshy habitats with a preferred water depth of 1–10 cm. In primeval landscapes it depends probably on mesotrophic or poor eutrophic floodplain fen mires which stay open because of their up and down moving surface, which is oscillating according to the river water table.

Recently, it has been recorded in:

1. Rich floodplain marshes in river valleys, comprising open sedge marshes with medium and large tuft-forming and scattered *Carex* (e.g. Biebrza and lower Odra river marshes in Poland, upper Ukrainian Pripyat), partly with taller *Molinia caerulea* or scattered, low stems of *Phragmites australis*, and often also scattered bushes, which all serve as singing posts for the males; this type of habitat depends more or less on human management (cutting or burning).
2. Mesotrophic or poor eutrophic open sedge fen mires, the ground covered by green mosses; the grassy vegetation is dominated by low or medium, partly tuft-forming sedges (mainly *Carex elata*, *C. diandra*, *C. rostrata*, *C. omskiana*, *C. juncella*, *C. appropinquata*, *C. lasiocarpa*) and cotton grasses (*Eriophorum angustifolium*, *E. gracilis*), shallow water or wet pillows of mosses (Dikoe and Yaselda, Zvanets and upper Pripyat marshes, Uday, Supoy, Biebrza, Žuvintas); avoids too poor mire tracts with *Sphagnum* mosses and *Eriophorum vaginatum*, as well as parts with too deep water, too dense and high bushes or reeds, or too high sedge tussocks.
3. Calcareous marshes with *Cladium mariscus* (Chelm marshes, Poland).
4. Seasonally flooded brackish marshes of the Baltic Sea coast characterised by very weak and low reed stands 80–120 cm high in summer (in Germany, Swina river mouth in Poland, along the Curonian lagoon -Nemunas/Neman river delta in Lithuania).

5. Wet marshy grasslands covered by high grass and clumps of sedge (in Hungary and in the Narew valley in Poland).
6. Wet hay meadows of *Alopecurus pratensis* and *Phalaris arundinacea* cut once or twice a year, with sedge patches mainly of *Carex gracilis* and *C. nigra* (Narew valley and lower Odra floodplains in Germany).

During migration Aquatic Warblers strongly favour low stands of sedges and reeds near open water, normally along rivers, estuaries and coastal lagoons (de By 1990). The habitat in winter is thought to much resemble that of the breeding grounds, including *Salicornia* associations, large inundated grasslands and reedbeds, etc. (Schulze-Hagen 1993).

### Threats and limiting factors

- **Change in hydrological regime in key sites**

Some Aquatic Warbler breeding sites for example in Belarus suffer under unfavourable man-made changes in the hydrological regime. This can lead for example to (1) lack of water, leading to reduced breeding success and population decline, (2) summer flooding with destruction of nests and (3) vegetation succession and loss of Aquatic Warbler habitat.

Importance: critical

- **Breeding habitat changes due to abandonment**

This is an important factor in Poland (Biebrza and Lublin marshes), Lithuania, Russia (Kaliningrad region), Belarus (Zvanets, Sporova), and Ukraine (huge areas in the upper Pripyat region) where, if cutting of vegetation and/or burning (or in some places grazing) is ceased, natural succession takes place and the habitat becomes unsuitable due to overgrowing by high reeds, willow bushes or succession forests of birch or alder. In the past, reeds used to be occasionally harvested with scythes in the Biebrza and Zvanets mires, and along Yaselda, Stochid and upper Pripyat rivers for use on floors and for thatching, etc., together with the more important harvesting of sedges as poor quality hay and the active elimination of bushes. These traditions have now stopped at many places.

Importance: critical

- **Loss of breeding habitat including drainage and peat extraction**

This is usually related to drainage for agriculture or peat extraction/excavation, damming of floodplains (Pripyat, Yaselda) and also unfavourable water management (e.g. water extraction or drainage of adjacent areas) and canalisation of rivers. Currently there are problems at several sites in Poland, Belarus and Ukraine with drainage amelioration and peat extraction affecting adjacent sedge fens (upper Pripyat, Zvanets, Dikoe, Sporova) and also direct destruction still of fen mires in Ukraine (Volyn and Rivne regions) and Belarus (e.g. S of lake Sporovskoe).

Importance: medium, but locally critical

- **Breeding habitat changes due to uncontrolled burning**

Burning is often used as a management tool in pastoral agriculture. Uncontrolled fires, especially in spring and summer and if the mire is very dry, cause severe habitat destruction by burning out of the upper peat layer. In Biebrza there was a 3,000-ha fire which caused a great deal of soil mineralisation, but uncontrolled burning is more often a direct threat, especially (to birds and nests) during the breeding season. Big spring and summer fires happened also in the Zvanets and Yaselda mires in Belarus. In Hungary, burned areas of suitable habitat were reoccupied by Aquatic Warblers only 5-6 years after fire. - But note: *controlled* burning in winter or early spring can be an appropriate management technique for maintaining the habitat quality.

Importance: high

- **Eutrophication by waste water**

Eutrophication of floodplain fen mires from city waste water and fish breeding ponds, by inundation with polluted river water, leading to changes in vegetation structure and species composition and speeding up the rate of vegetation succession, was observed in the Yaselda floodplain downstream of Berioza (Belarus).

Importance: medium

- **Eutrophication resulting from mire drainage**

Mineralisation of mires due to lowered water levels leads to minerals being washed downstream to flooded Aquatic Warbler areas, thus speeding up the rate of vegetation succession. This could be an important factor (Yaselda incl. Sporova mires, Belarus; several areas in the upper Pripyat region, Ukraine).

Importance: medium

- **Road building**

Habitat loss and alterations in hydroregime, due to building of roads on dams crossing fen mires and floodplains has occurred at some sites (Dikoe mire in Belarus, lower Odra in Germany).

Importance: overall low, but locally high

- **Unsuitable management by cutting or grazing**

Some sites in Hungary, Poland (reed plantations in the lower Odra region) and Lithuania (Nemunas/Neman delta) suffer from too frequent/too intensive cutting or grazing, or from unfavourable agricultural management measures during the breeding season (too low intensity of cutting or grazing is included in the earlier section on 'abandonment').

Importance: low, but locally high

- **Disturbance caused by man**

In Biebrza birdwatchers tend to leave the paths and trample around the nesting habitat. This is also a potential problem in smaller places such as Chelm marshes.

There have also been some attempts at egg-collecting but these have generally been prevented.

Importance: low and localised

- **Habitat changes and habitat loss in wintering areas**

Drought and habitat alteration in the winter quarters could be true bottlenecks for the Aquatic Warbler. The main threats which have been identified are: drying up due to periods of drought; drainage projects to enable irrigation and farming; increasing human population; overgrazing of grasslands by cattle; succession of grass associations into scrub; increasing desertification as well as salinisation of irrigated soils.

Importance: unknown, potentially critical

- **Habitat change and loss at migration sites**

The extent of this problem and its impact on the population are unknown but could be affecting the population.

Importance: unknown

## **Conservation status and recent conservation measures**

- **Belarus**

The Aquatic Warbler is classed as Data Deficient in the Red Data Book of Belarus (1993) and is legally protected. In the forthcoming Red Data Book the species will be listed as Vulnerable in accordance with IUCN criteria. The protection of the species is envisaged in the 'National Strategy and Action Plan for the Conservation and Sustainable Use of Biological Diversity in the Republic of Belarus', which was ratified by the government of Belarus in 1997.

Systematic surveys in the whole of Belarus in 1995 - 2002 showed, that Belarus holds more than half of the known world population of Aquatic Warbler, altogether 6,600 - 12,500 singing males distributed at 8 scattered breeding sites; it is estimated from retrospective analysis of open fen mire areas, that since the 1960s suitable habitat area and population size of Aquatic Warbler must have suffered a decline of more than 90% within the last 30 years, mainly due to drainage, land reclamation and peat extraction (Kozulin & Flade 1999). Nearly 15,000 km<sup>2</sup> of fen mires have been drained since 1960; the open fen mire area decreased from c. 3,800 km<sup>2</sup> in the mid-1970s to c. 440 km<sup>2</sup> in 1995/96, out of which ca. 154 km<sup>2</sup> are thought to be still suitable for Aquatic Warbler. The most important remaining breeding site is the Zvanets mire (190 km<sup>2</sup>) near Kobryn, Brest region, with 3,600 - 7,600 singing males registered here (yearly changes according to water table fluctuations). Other important mires are Dikoe (Yaselda and Narew spring, Brest region, 81 km<sup>2</sup>) with c.1,700 - 1,800 singing males and the mires along the Yaselda river between Beroza and Sporova lake (50 km<sup>2</sup>, c. 570-2,400 singing males).

About two thirds of the Zvanets mire is a national nature zakaznik, the rest has been unprotected (western part) or drained for agriculture (southern part) during the last 10 years (drainage work was still going on in 1995/96). In 2002, a scientific rationale was prepared for expanding the biological zakaznik Zvanets to the entire area of the mire. In 2003, the Ministry of Natural Resources and Environmental Protection of Belarus initiated the reorganization and expansion process.

The Dikoe mire is mostly declared as hydrological reserve (zakaznik), but is negatively impacted from drained land in the eastern part. In 1999, the whole mire was transferred into the jurisdiction of the National Park "Belovezhskaya Pushcha". A subsequent ruling of the Cabinet of Ministers of Belarus is expected formally to include the Dikoe mire in the National Park "Belovezhskaya Pushcha".

In early 1999, the bulk of the mire in the Yaselda river floodplain south of Berioza was included in the Sporovo zakaznik, with its area increased to 190 km<sup>2</sup>. Nevertheless, the mire is still threatened with degradation caused by adverse changes in the Yaselda hydrology.

Other mires with smaller Aquatic Warbler populations (e.g. Yaselda mouth E Pinsk, Prostyr and Shchara floodplain mires, Servech mire in Vitebsk region) are mostly protected as zakazniks. As of recently, three breeding sites of the Aquatic Warbler – zakazniks Sporovo, Mid-Pripyat and Zvanets – have been designated as wetlands of international importance (Ramsar Sites). Another two sites – Dikoe and Prostyr – have been designated as potential Ramsar sites.

In 1998, monitoring plots of 40-120 ha size for studying changes in hydroregime, vegetation, Aquatic Warbler density, reproductivity and essential habitat parameters were established in the five most important fen mires of Belarus by the Academy of Sciences.

Considering the importance of the Belarusian mires for the conservation of the Aquatic Warbler, an international project was implemented in Belarus 1999-2002, to elaborate management plans for three key fen mires. Initiated by APB-BirdLife Belarus and the Royal Society for the Protection of Birds (UK), the project was funded by the Darwin Initiative for the Survival of Species (UK) and UNDP. As a result, the management plans for Zvanets, Sporovo and Dikoe have been successfully prepared.

- **Belgium**

On migration, the Aquatic Warbler occurs regularly in coastal wetlands (reed beds) in late summer and autumn. In Veurne, in the period from 1988 to 1998 between 7 and 84 birds have been caught and ringed each year, in total 351 birds (N. Roothaert, pers. comm.). In Zeebrugge, in 1987 – 1990 between 11 and 145 Aquatic Warblers have been caught and ringed, in total 272 birds (T. De Schuytter, pers. comm.). In 1990 for instance, 229 Aquatic Warblers have been caught in both sites together.

- **Bulgaria**

The Aquatic Warbler occurs regularly on spring and autumn migration, with

preference on the coastal region in NE-Bulgaria. Notes about breeding proved to be unreliable (e.g. about possible nesting in grassy gardens at the edge of villages and towns, Kuznetsov 1967 cited in Nankinov 1995). There is not any evidence for breeding in the country (P. Iankov pers. comm.). Nankinov (1995) published a summary of records in Bulgaria. Most of observations and captures origin from the period 1976 to 1988. 401 Aquatic Warblers have been ringed, most of them from August to October. A small peak occurs also in May (earliest records about 20 April). The maximum of birds caught for ringing was 186 in 1977 and 118 in 1980.

- **France**

Large reedbeds on the coast (Channel, Atlantic and Mediterranean) or inland are regularly used during migration. The species is more numerous during the autumn passage than in spring. The number of birds ringed has remained fairly stable despite an increase in the ringing effort (EURING ACRO PROJECT). The number varies between 110 to 200 individuals caught each year.

- **Germany**

The Aquatic Warbler is classed as Critically Endangered in the German Red Data Book and is legally protected. The breeding population is the westernmost and smallest of all the European countries. Since 1999 there has been only one isolated site, in the north-east corner of Germany close to the Polish border, in the polders of the Odra river near Schwedt and Friedrichsthal. The remaining German population is only 9-15 singing males in total. The former population at the Baltic Sea coast near Greifswald became extinct in 1998 as a result of overgrazing.

- **Hungary**

The species is strictly protected under the Hungarian law for the conservation of nature and is listed as Endangered in the Hungarian Red Data Book. The only breeding population is in the Hortobágy National Park, where it has increased from 19 singing males in 1971 to 700 singing males in 2001 (Kovács & Végvári 1999, Végvári pers. comm.). Following a serious drought in 2002 and the burning of 30% of Aquatic Warbler habitats, only 386 singing males were recorded in that year. A monitoring scheme has been in effect for 18 years, longer than in any other country. There may be further small populations still to be discovered in Hortobágy.

- **Latvia**

The species is listed as Endangered (category 1) in the Latvian Red Data Book (Lipsbergs 2000) and it has been included in the List of strictly protected species of Latvia. There are 36 confirmed records since 1940 (mostly captures at Lake Pape and Lake Liepāja, A. Celmiņš, unpublished data) and further unconfirmed records, but only one proof of breeding in 1940 at Lake Babīte (Roms 1942). Vīksne (1994) is mentioning also Sārnate/Užava Bog as a breeding site for the species, however, there are no actual observations in Sārnate Bog or Užava marshes, although habitat in Užava marshes might have been suitable for Aquatic Warbler before the large scale drainage in the middle of 19th century (Strazds 1997). Collections of Zoological Museum of University of Latvia contained two clutches of this species, collected at Bērzaune (Madona district, Eastern part of Latvia) in 1919, and near Rīga in 1923 (Baumanis 1983), however the first clutch (1919) could not be found any more in

2000 and the identification of the species for the second clutch (1923) could not be confirmed (K. Schulze-Hagen, pers. comm.). Special searches for breeding populations of the species in 1997 at the ten most promising sites in the whole country remained unsuccessful (O. Keišs, unpublished report), despite some suitable habitat areas being found. However, in 2000 and the following years (2001 and 2002) singing males (1–3 individuals) were observed at Lake Liepāja, A. Celmiņš, unpublished data). Thus the breeding population of Aquatic Warbler in Latvia is very small (1–5 pairs).

- **Lithuania**

The Red Data Book (2001) classifies the species as especially protected, Vulnerable. A systematic survey in 1995 - 1997 (Ž. Preiksa, unpublished report) in the central and western parts of the country revealed eight localities with –225-280 singing males in total, with main breeding sites along the Curonian Lagoon, especially in the Sakučiai - Dreverna area (200-300 singing males), the Nemunas/Neman delta Regional Park (c. 50 males) and Žuvintas Biosphere Reserve (decrease from c. 25 in 1986 to 10-15 males in 2000-2002). Altogether, habitat changes related to vegetation succession due to cessation of cutting (or other appropriate management like controlled burning) is the most important threat (Žuvintas), followed by changes in water table (Nemunas/Neman delta). Cutting of vegetation in the breeding season has been identified as a problem for Aquatic Warblers in the Nemunas/Neman delta Regional Park (P. Mierauskas, Ž. Preiksa pers. comm.). An action plan for the species and a management plan for Nemunas/Neman delta Regional Park have recently been prepared and now need implementation. The special protection area (as a Natura 2000 site) should be established in the Curonian lagoon area, and a management plan should be prepared for this area. It is still necessary to do a proper survey in the eastern parts of the country, because further suitable breeding habitats are known there.

- **Poland**

The Aquatic Warbler is protected under the Nature Conservation Law of 1991 and is listed in the Polish Red Data Book as Endangered (Głowaciński 1992). A survey in 1997 resulted in an estimated total population of ca. 2,900 - 2,950 singing males in Poland distributed in 13 sites; in 1989-1995 the population was estimated at c. 3,200 - 4,450 males (Krogulec & Kloskowski, unpublished report, Kloskowski & Krogulec 1999). There are three main subpopulations:

1. Biebrza is the most important breeding area, with 2,041 - 2,082 singing males in 1997 (1991: 2,500 - 3,500, E. Pugacewicz unpubl.). A population decline due to overgrowing by reed-beds and willow-birch communities occurred, caused by lowering of the water table and cessation of cutting and grazing. A National Park was established in 1993. There has been no further decline at the main site, due to excellent habitat management by the National Park administration. A research project on the Aquatic Warbler led by A. Dyrzcz of Wrocław University has been going on for nearly 20 years.

2. Chelm is part of the Lublin marshes, and the Aquatic Warbler is present in four neighbouring blocks, totalling 15 km<sup>2</sup>. In 1997, 477 singing males were counted; the highest density is 6.6 males/ha. A management plan has been produced by OTOP.

Two specific management actions have been undertaken: cutting of scrub to create more open habitat and promote colonisation by the Aquatic Warbler (by the Polish Bird Protection Society, OTOP); and cutting of trees to clear the habitat (by the Lublin Forest Authority and the Lublin Ornithological Society, LTO).

3. In Western Pomerania (lower Odra and Odra estuary) the number of recorded singing males was 383 in 1991, 217 in 1993, 226-231 in 1997, and 60-80 in 2002. There could be some more small populations still unknown. There are ten subsites holding Aquatic Warblers which are at present unprotected. Nearby is Wolinski National Park which could be extended to cover two islands of the Swina mouth. A Landscape Park has been established in the Inter Odra region, the first step for a future cross-border National Park with Germany to the south of Szczecin. OTOP has established a private reserve in the island of Karsiborska Kepa. Threats are caused mainly by abandonment of hay meadows, advanced succession of reeds and industrial exploitation of reeds.

- **Russia**

The Aquatic Warbler is included in the Red Data Book of 2000 in category 4 (insufficiently known). It is also listed in three regional official Red Data books, eleven regional scientific Red Data books, and five regional official Red Lists. The species is rare and of erratic occurrence in the European part of Russia, except at the Curonian Lagoon in the Kaliningrad region where there is a small population (not more than four singing males found, Kalyakin 1996) in close neighbourhood to the Lithuanian core population. A review of all available literature data in Russia (Kalyakin, unpublished report, 1998; Aquatic Warbler Conservation Team 1999) shows that the species was rare in all territories within its Russian range during the last 100 years. Only very few data could be collected on its (occasional) breeding. Recently, no stable local breeding population is known, and none was known in European Russia in the past. Moreover, the small and decreasing of number of records does not suggest the presence of large unknown breeding populations.

The Aquatic Warbler is protected within three federally Protected Areas - two Zapovedniks ('Basegi' and Khoperskiy) – and one National Park ('Smolenskoe Poozerie') and was recorded within 5 Important Bird Areas in European Russia (Nemunas/Neman Delta and Curonian Lagoon Coast, Watershed of Bitug and Tsna rivers, Kamsko-Yayvenski wetland, Nizhne-Kamskaya flood-plain, and Bel'skaya flood-plain).

New information about a non - regular breeding population in the South Ural region (area of Kama reservoir, Perm region, Bashkiria, Chelyabinsk and Sverdlovsk regions) was received (Karyakin 1997) and one presumed 'breeding pair' (but note: female is caring solely for the young!) was discovered in 1993 (As'keev & As'keev 1994). Special attempts to find breeding birds in some parts of European Russia were made in 1993-1995 and especially 1998 (the most promising sites in Perm region and the Meschera mires in Ryazan, Moscow and Vladimir regions), but were unsuccessful - despite some suitable habitats being found especially along the Pra river (Ryazan region) (Flade, Kalyakin, Baumung, unpublished). For this reason, a hypothesis has been formulated by Flade & Kalyakin (unpublished report, 1998), that all records in

European Russia relate to birds of a remaining isolated breeding population in West Siberia (Ravkin *et al.* 1997), which pass through European Russia on a narrow west front and sometimes stop over at suitable places. However, further study is needed.

Four Aquatic Warbler Conservation Team expeditions to W-Siberia in 1999-2002 could not find any Aquatic Warblers in Tomsk - Barabinsk -Novosibirsk region, despite large areas of suitable structured habitats occur here. In the Shegarka mire W Tomsk, where Ravkin (1993) reported a big population in 1967, the species was definitely absent in 1999. In 2000, very small numbers of singing males (11-15 in total) were found near Tyumen and at two sites in northern Omsk oblast. The total West Siberian population is estimated at 50-500 males maximum, and it is believed that this is the last remnant of a former large population, now going extinct. There are large areas of suitable fen mires, but the population is probably too isolated and small to survive in this region of sub-optimal climate at a great distance from the probable wintering sites.

- **Senegal**

45 records mainly from the Djoudj National Park on the coast (Schäffer & Gutteridge, in prep.).

- **Spain**

The Aquatic Warbler is strictly protected in Spain; it is included in the National Catalogue of Endangered Species (Royal Decree 439/1990) in the category “of special interest”, and thus the Autonomous Communities must elaborate Management Plans for the species. In the forthcoming Red Data Book the species will be listed as Vulnerable in accordance with IUCN criteria. The majority of the areas where the species is regularly recorded are protected, including by Ramsar sites and Special Protection Areas (SPAs), National Parks (Doñana) and Protected Natural Areas of the Autonomous Communities. The Aquatic Warbler is a regular migrant, using both coastal and inland wetlands. It has been recorded in spring as well as in autumn, however, it is more abundant during autumn migration. The main identified site is the Laguna de la Nava (135 birds ringed there in 2002), and this site benefits from a LIFE project, running from 2002-2006 and entitled “Conservation of the Aquatic Warbler in the Nava-Campos SPA”. This is the first LIFE project with the specific object of Aquatic Warbler conservation in Europe, and includes, among other provisions, the restoration of lakes, land acquisition to increase the size of suitable habitats, improvement of water quality, studies of phenology and ecology of the species, and public awareness-raising campaigns. The Ebro valley acts as a connection corridor along the migration routes (Atienza *et al.* 2001).

- **Ukraine**

The species is included in the Second Edition of the Red Data Book (1994). Extensive surveys in 1996 - 1998 by A. Poluda and co-workers in central and north-west Ukraine, and Flade, Gorban, Kozulin, Tishechkin and co-workers along the upper Ukrainian Pripyat in Volyn region, revealed a total population of 2,400 - 3,400 singing males, which are mainly concentrated at the following sites (POLUDA *et al.*, 2001):

1. The Pripyat population group: Upper Pripyat and tributaries (Volyn and Rivne

regions) 1,850 - 2,500 males, with bigger subpopulations along the Pripjat between Ratno and Cyr mouth (1,120 - 1,450), Vizhery mire, lower Turiya (250), Stohid valley (70 - 150), Styr valley (150), some mires along the border with Belarus (90 - 200) and Shatsk National Park (25).

2. The Desna-Dniepr population group: Kyiv and Chernigiv regions c. 500 - 580 males, with bigger subpopulations in the Uday valley (250 - 270) and the Supoy valley (180 - 200).

Despite of the lack of reliable reference data one can assume, that the Aquatic Warbler must have suffered a dramatic decline due to habitat loss in the whole Ukraine during the past decades. Nevertheless, the actual situation of the two subpopulations seems to be very different.

Although the Aquatic Warbler must have been far more widespread in central Ukraine in former times and immense habitat losses due to drainage and land reclamation occurred until recent times (as the surveys in e.g. Zhitomir, Chernigiv, Vinnitsa, Khmelnytsky and Poltava regions showed), the Uday and Supoy populations seem to be not actually threatened. Major parts are included in protected areas and, more important, habitat conditions seem to be rather stable without management. The habitat is a mesotrophic fen mire, which oscillates according to the river water table and is not regularly used for cutting or grazing. There were also no signs of impact of burning in the survey years. In the past, parts of Supoy valley have been destroyed as Aquatic Warbler habitat by damming up of fishponds and alteration of water table, and big parts of Uday valley have formerly been drained. Thus the remaining breeding habitats are remnants of a much bigger area of suitable habitat. It should be ensured by legislative and administrative measures, that the remaining habitats have to be protected under the status quo conditions.

In contrast, parts of the upper Pripjat population are threatened. On one hand, drainage work for agriculture and peat excavation has destroyed huge fen mire areas even during the past 5 - 10 years (e.g. between Ratno and the Belarusian border or between Pripjat and Prostyr) and is still continuing (e.g. mires E of Stohid valley); the amount of direct habitat loss is difficult to assess, but is likely to exceed 80 % within 30 years. On the other hand, the remaining fen mires are heavily impacted by vegetation succession (overgrowing with willow bushes, alder and birches) due to alterations of hydroregime and ceasing of traditional land use practices (hand scything, winter burning, low-intensity grazing). The most suitable and stable (but also declining) habitats have survived very close to the Pripjat river, where regular flooding and high water table restrains vegetation succession (e.g. downstream Retchica and around Chedrogir) and in some areas, where still hay making takes place (e.g. lower Turiya, Vizhery mire).

The two most important subsites, Zalessye mire (200 - 300 males) and the Pripjat marshes between Vetly, Borki and Tsir mouth (600 - 800 males), are still used for hay making in some parts (mostly smaller patches), but more than the half of these floodplain mires are overgrown by willow shrubs in the meanwhile. Without large-scale habitat management the Aquatic Warbler populations are likely to become extinct within the next 20 - 30 years.

The situation of some remaining mires north of the Pripyat more distant to the river is even worse (Ur. Yamki N Lake Rosotchkoye, Gretchishcha). Since agricultural use has mostly been dropped and drainage of adjacent areas additionally is impacting those mires, the last singing Aquatic Warblers are concentrated to some smaller remaining open patches which will be overgrown by bushes and trees within the next 5 - 10 years. Practically all Aquatic Warbler breeding sites of Desna-Dniepr population group are included in protected territories, with the exception of some small sites holding not more than 5% of the regional population. Another situation has to be stated in the Pripyat population group. Only about 50% of the population are disposed within protected territories.

- **United Kingdom**

The Aquatic Warbler is identified as a Red List species owing to its status as globally threatened, and because more than 50% of the UK passage population is restricted to 10 or fewer sites (Gregory *et al.* 2002). In the UK, the bird is mostly recorded in August. Numbers have been maintained until at least the end of the 1990s, though this situation may be due to some extent to increased ringing effort. All the most important sites known regularly to support the species have been designated as Special Protection Areas (SPA) and/or are within nature reserves.

## CHAPTER 2. AIMS AND OBJECTIVES

### AIMS

To maintain the species of the Aquatic Warbler throughout its range. In the medium to long term, to promote the expansion of the breeding population to other suitable areas.

### OBJECTIVES

#### 1. POLICY AND LEGISLATIVE

##### *1.1. To promote national and international broad policies and legislation which favour the conservation of the Aquatic Warbler and its habitat*

###### *1.1.1. Promote the full protection of the Aquatic Warbler and its habitats through national and international legislation*

Given its status as a globally threatened species, action should be taken to ensure that the Aquatic Warbler receives the fullest possible legislative protection in all range-states. These countries should be encouraged to adopt a listing process for all the threatened species and produce recovery plans or action plans for those that are threatened.

Steps should also be taken to ensure that in all range-states effective national legislation is in place to protect Aquatic Warbler breeding habitat, including the prevention of potentially damaging drainage, e.g. for local water supply, mineral extraction, industry, etc.

Environmental impact assessment regulations should be promoted. It is recommended that the use of insecticides in water catchments should be regulated and limited. Range-states should be encouraged to prepare national wetland action plans for the sustainable use of all wetland resources in their territory. Legislation that provides for management agreements with landowners/managers who manage their land for the benefit of the species should be encouraged and promoted.

Priority: essential

Time-scale: short

###### *1.1.2. Seek national or international policy incentives to maintain suitable farming practices at breeding sites which are impacted by drainage or threatened by succession*

It is assumed that suitable farming practices such as hand-scything, grazing with particular low-productivity breeds of cow, and late mowing, which have characterised important Aquatic Warbler breeding sites especially on rather eutrophic floodplain mires, are required to maintain those habitats in a condition suitable for the birds. However, in many areas within the species' range these practices are rapidly disappearing as uneconomic. Without intervention, agriculture in many sites may have completely ceased within 5–10 years. It is therefore essential to seek policies that enable people to maintain these traditional methods of farming while still enjoying a reasonable standard of living. National or supra-regional agricultural land-use policies that increase incentives for damaging management of Aquatic Warbler habitat should be opposed or modified.

The concept of Environmentally Sensitive Areas, currently being applied in the EU, promotes environmentally friendly farming. Consideration should be given to developing a similar scheme for eastern Europe with international funding.

Priority: high  
Time-scale: medium

## **2. SPECIES AND HABITAT PROTECTION**

### **2.1. *To promote adequate protection of the breeding sites and remove key factors adversely affecting the breeding habitat***

#### *2.1.1. Seek designation as protected areas of all sites regularly holding breeding Aquatic Warblers*

Protection of Aquatic Warbler sites including appropriate management should be encouraged. When designating protected areas, the protection of buffer zones around core Aquatic Warbler sites should be considered.

Management plans for the protected areas should be produced, taking into account the species' habitat requirements. These areas should be provided with sufficient human resources and equipment for their adequate management.

The renting or acquisition of important sites should be considered, and these reserves should be managed appropriately in terms of habitat and visitors.

Priority: high  
Time-scale: ongoing

#### *2.1.2. Prevent habitat alteration, habitat fragmentation, pollution and other factors that could be detrimental to the Aquatic Warbler in its breeding sites*

The enforcement of legal protection at sites already designated as national or international protected areas must be ensured. Where legal designation of an important site has not been completed, damaging developments should be opposed as far as possible. This is also necessary in adjacent areas, which could impact the breeding sites.

Drainage, water extraction and other kinds of detrimental water management should be avoided. Burning should also be controlled and turf fires prevented. Waste disposal at breeding sites must not be authorised and alternative sites should be suggested.

Priority: high  
Time-scale: ongoing

### **2.2. *To manage the breeding habitat to increase numbers, productivity and distribution***

#### *2.2.1. Regulate water levels and restore natural water conditions*

This is especially necessary in those places where drainage and canalisation have had a

severe impact on the wetlands. Sound water management and restoration of natural water conditions can substitute other management techniques like cutting or burning.

Priority: essential  
Time-scale: ongoing

#### *2.2.2. Prevent natural succession of the vegetation by undertaking management where necessary*

To maintain their suitability for Aquatic Warblers, several thousand hectares of breeding habitat require active management, especially in unflooded plots. Within 5–10 years agriculture at many sites may have ceased completely. Traditional farming practices at breeding sites should be maintained and promoted.

Priority: essential  
Time-scale: ongoing

#### *2.2.3. Hand-scything and mowing*

Those methods of traditional low-intensity farming are necessary at sites, where drainage and eutrophication impact the mire and succession (intrusion of bushes or reeds) takes place. Due to access problems, the only practicable means of keeping the vegetation down in many plots is hand-scything. In the past, vegetation was scythed every year, though the effects of this practice on the Aquatic Warbler are still poorly understood. A suitable rotation of scything on small blocks should be enough to maintain suitable nesting habitat, cutting every year in different plots, though this prescription needs to be tested experimentally.

Management could also be done with small mowing machines or by low-density cattle grazing. Hay meadows should not be mowed before the end of July, removing the sedge after mowing. Growth of bushes and reedbeds should be prevented.

Priority: high  
Time-scale: ongoing

#### *2.2.4. Controlled burning*

Fire can be a very effective management tool though its effects are still poorly understood in detail. While considered to be beneficial, further investigation is needed on the effects on invertebrates and the ecosystem in general. In newly grown areas arthropod density drops by 5–7 times after burning in early spring, compared to adjacent unburned areas.

In some areas rotational burning takes place every 4–5 years and could be done in January–February when the marshes are frozen but there is not much snow. Larger bushes are not controlled by this sort of burning and should be removed by hand.

Uncontrolled fires should be stopped. This means the employment of wardens and local farmers in early spring to control burning.

Priority: high  
Time-scale: ongoing

#### *2.2.5. Grazing*

The effect of grazing on Aquatic Warbler habitat is not as beneficial as mowing/scything. The general agricultural trend is to abandon grazing, which is only maintained on flooded meadows immediately adjacent to rivers. In some areas there are breeds of marsh cows specially adapted to this environment, and these should be bred for conservation management purposes.

Populations of native wild ungulates (Elk *Alces alces*, Roe deer *Capreolus capreolus* etc.) should be conserved and encouraged in order to keep down bush growth, but overgrazing should be avoided in all cases.

Priority: medium

Time-scale: ongoing

#### *2.2.6. Disseminate habitat management recommendations to land managers*

Guidelines for the management of breeding habitat should be prepared, and disseminated among managers of protected areas and landowners. Appropriate management should be encouraged.

Priority: low

Time-scale: ongoing

### ***2.3. To protect the Aquatic Warbler and its habitat in the winter quarters and along the migration route***

#### *2.3.1. Promote the protection and appropriate management of wintering and passage sites*

All sites used regularly by birds on passage and during winter should be protected and appropriate habitat management carried out. Development proposals that could have a detrimental effect on these sites should be opposed or modified, e.g. if they have the potential to damage or destroy habitat, cause pollution, or increase disturbance.

Priority: high

Time-scale: ongoing

### ***2.4. To restore habitats for the Aquatic Warbler***

#### *2.4.1. Undertake the ecological restoration of potential breeding sites*

The extensification of farming practices in some parts of Europe provides the opportunity to create suitable areas for the Aquatic Warbler. This should be pursued especially where nearby breeding populations exist, as a means of promoting range expansion.

There are no examples yet of successful restoration of open fen mires into the primeval conditions suitable for Aquatic Warbler, but there are examples of population recoveries in secondary habitats which depend on some kind of management (lower Wartha, Hortobágy)

Priority: medium

Time-scale: ongoing

### 3. MONITORING AND RESEARCH

#### 3.1. *To develop and implement a monitoring programme enabling population trends to be tracked*

##### 3.1.1. *Distribution of a methodology for counting Aquatic Warblers*

The recommended methodology for large areas is transect counts through various habitats. According to the Polish method, which is performed simultaneously by several observers, the mapping strips along the transect should be 50 + 50 m wide. In the very large fen mires of Belarus, mapping stripes of 100 + 100 m have been used starting at one point to different directions (in the form of an asterisk) by several observers. In smaller sites (< 100 ha), mapping of singing males on marked square plots is more appropriate. The best dates are 15 May to 20 June (in the north: 20 May to late June), when the numbers of singing males are stable, starting one hour before sunset until 45 minutes after. Transects have to be long enough not to be affected by local successional changes; the ideal length is about 1.5 km (or 2 hours) per observer. According to the new experience gained from the monitoring work in Belarus, it has turned out to be very efficient to count alarm-calling females around nestlings or fledged juveniles between mid-June and mid-August. This is very valuable for estimating breeding success and spatial distribution of broods (which can be very different to the distribution of singing males).

For long-term monitoring of important mires, one plot of at least 100 ha in each key site should be investigated with 2-3 visits per year over the whole breeding season (as has been practised in the key fen mires of Belarus since 1998). The minimum interval between two visits should be two weeks.

It is essential to write habitat descriptions using comparable methods (actually developed in Belarus) twice each year on the monitoring plots (e.g. water level, vegetation structure, human activities like cutting or burning).

Some elementary training is required to learn identification features of the Aquatic Warbler, and how to differentiate it from lookalike species such as the Sedge Warbler *A. schoenobaenus*.

It is essential that monitoring is done regularly at as many sites as possible, e.g. counts in two consecutive years every five years. Organisers of the surveys should remain constant at particular sites.

Priority: high  
Time-scale: ongoing

##### 3.1.2. *Undertake national surveys to estimate breeding populations*

Such national surveys should be co-ordinated internationally. Although surveys in European Russia, Siberia and some parts of Ukraine are needed particularly urgently, the surveys in all other countries within the range should be continued. An effort should be made to identify all breeding localities, using aerial photographs as a guide to potential sites. It is desirable that the same survey techniques be used at every site, and these should be compatible with the monitoring techniques.

Priority: high/essential  
Time-scale: ongoing/short

*3.1.3. Collect data at the major known passage sites and identify further resting sites*

Intensive ringing by fully trained and responsible workers should be promoted. The use of a tape recorder during the night at potential migration sites allowed the capture of c.300–400 birds in Belgium and France during 1989–1991. It is also possible to catch birds during the breeding season by playing the song of the Sedge Warbler, to which Aquatic Warblers react aggressively.

Priority: medium  
Time-scale: ongoing

*3.1.4. Identify major wintering areas*

By ringing in the breeding grounds and on migration, and by mist-netting at potential wintering sites.

Priority: high  
Time-scale: short

*3.1.5. Research into habitat characteristics at migration and wintering sites*

Once sites have been identified, research is needed into the habitat requirements of the species outside the breeding season and any threats these sites may face. This information is needed before actions to protect these sites can be planned, if necessary.

Priority: medium  
Time-scale: ongoing

*3.1.6. Research on movements during the breeding season / exchange of subpopulations*

It is likely that the mobility of the population during the breeding season is very high, according to the changing environment of preferred habitats (Kozulin & Flade 1999, Kozulin, Flade & Grichik 1999). This should be studied by ringing (preferably with colour rings). The exchange of isolated subpopulations (like the Polessian, Hungarian and W-Siberian populations) should be investigated by genetic methods.

*3.1.7. Develop and implement an international monitoring programme*

Workers in breeding areas to standardise methodology for surveying. Ringing returns in migration/wintering areas to be reported “centrally”. Expeditions to Central Africa.

**3.2. To promote research useful for the conservation of the Aquatic Warbler in the future**

*3.2.1. Undertake comparative studies on breeding success and population recruitment in different habitats*

The breeding biology is quite well studied at some sites but there is not much information from other areas and especially different mire types, e.g. different trophic level of habitats. A comparative study is required to assess variation in breeding density and success between different habitat types and sites. Investigations on this item have been started in Belarus in 1998.

This research may be (or should be) linked to the monitoring plots.

Priority: high  
Time-scale: ongoing/medium

*3.2.2. Assess the effect of burning, scything, mowing, grazing and water conditions on breeding populations*

An international working party should be set up to investigate potential burning techniques, taking into account the danger of turf fires, and also the effects of restoration of mires on Aquatic Warbler.

Priority: high  
Time-scale: short

*3.2.3. Develop collaborative research and monitoring programmes between range-states*

With establishment of the Aquatic Warbler Conservation Team in 1998, the existing co-operation between Germany and Poland has been extended to the Baltic republics, Belarus, Ukraine, Hungary and Russia. Financial support from Germany, The Netherlands and the United Kingdom for Aquatic Warbler surveys in the countries mentioned above was given in 1995-1999, but further support would be desirable.

Priority: high  
Time-scale: short

## **4. PUBLIC AWARENESS**

*4.1. To ensure development of a strong network of organisations and individuals committed to the conservation of the Aquatic Warbler*

NGOs play an essential role in the conservation of species and habitats and also contribute to increasing the awareness of the general public. International conservation organisations such as BirdLife International, IUCN, Wetlands International and WWF should continue to provide technical and financial help for national and local initiatives in Aquatic Warbler countries. They can also play a role in co-ordinating the efforts of volunteer ornithologists.

Priority: high  
Time-scale: ongoing

*4.2. To use the Aquatic Warbler as a flagship species*

Being Europe's rarest migratory breeding passerine the Aquatic Warbler should be used as a key species for the inventory and protection of lowland marshes and wet meadows. It should be elected as "bird of the year" in several countries simultaneously, as a means of increasing awareness and for fund-raising.

Priority: high  
Time-scale: short

*4.3. To prepare educational materials promoting and giving information*

Information and educational services to the public should be provided in protected areas. These should include leaflets, stickers, T-shirts, etc. A promotional film about the species and the areas where it lives should be made, and the inclusion of Aquatic Warbler sequences in nature films and documentaries promoted.

Priority: high  
Time-scale: short

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## **PART 2**

### **RECOMMENDED CONSERVATION ACTIONS BY COUNTRY**

## **Belarus**

- 1.1.1. Promote the development and implementation of the National Action Plan for the Conservation of the Aquatic Warbler.
- 1.1.1. Ensure that the Aquatic Warbler is listed in the new edition of the Red Data Book of Belarus.
- 2.1.1. Expand the Zvanets zakaznik to match the area of the Important Bird Area (IBA) Zvanets, to ensure the conservation of internationally important biodiversity at the IBA and to minimize the anthropogenic impact on the ecosystem.
- 2.1.1. Include the entire Dikoe wetland in the National Park Belovezhskaya Pushcha and revise the borders of the NP protected zone, so as to ensure maximal conservation for the internationally significant biodiversity at Dikoe and to minimize the anthropogenic impact on the ecosystem.
- 2.1.1. Substantiate and promote the establishment of management offices for zakazniks Sporovo and Zvanets – key Aquatic Warbler breeding areas and Ramsar Sites.
- 2.1.1. Compile and implement management plans for the key breeding sites – zakazniks Dikoe, Sporovo, Zvanets, Mid-Pripyat, Servech, Prostyr and Vygonoshchi.
- 2.1.2. Reduce the inflow of pollutants in the Sporovo wetland by repairing the water treatment facilities in Berioza, Beloozersk and local water treatment facilities at factories, as well as elaboration and implementation of a set of water protection measures.
- 2.2.1. Ensure management of the hydrological regime at mires Sporovo, Zvanets and Dikoe for sustainable functioning of the wetland ecosystems, conservation of open fen mires and associated biological diversity, to balance the interests of local land users.
- 2.2.1. Revise the current operational rules of the Selets water complex, to meet the interests of local water users and ensure optimal hydrological regime in the Sporovo zakaznik.
- 2.2.2. Work out and implement actions on limiting the overgrowth of mires by willow shrubs and reedbeds (zakazniks Sporovo, Zvanets, Dikoe, Vygonoshchi).
- 2.2.3. Maintain extensive use of mires by hand hay-cutting in zakazniks Sporovo, Zvanets, Dikoe, Vygonoshchi.
- 2.2.4. Run controlled burning of vegetation once in 3-5 years in zakazniks Sporovo, Zvanets.
- 2.2.6. Inform the local land users and authorities about the prescriptions of the management plans for zakazniks Sporovo, Zvanets, Dikoe.

- 2.4.1 Within the UNDP/GEF project "Renaturalization and sustainable management of peatlands in Belarus to mitigate climate change, combat land degradation, and ensure conservation of globally valuable biodiversity", some 5-8 drained wetlands (100km<sup>2</sup>) are expected to be renaturalized, thereby providing potential habitat for the Aquatic Warbler.
- 3.1. Arrange monitoring of water levels, flora and vegetation communities, habitats, populations of Aquatic Warbler, to evaluate the status of major Aquatic Warbler habitats (mires Zvanets, Sporovo, Dikoe, Servech) and adjust the implementation of the management plans.
  - 3.1.1. Disseminate the expertise in monitoring of the Aquatic Warbler.
  - 3.1.2. Run nation-wide surveys to assess the dynamics of the breeding Aquatic Warbler population.
  - 3.1.3. Promote intensive bird ringing at breeding sites, to detect migration stopovers and wintering sites of the Belarusian population of the Aquatic Warbler.
  - 3.1.6. Continue survey of the bird movements during its breeding season (subpopulation exchange) by applying individual colour marks.
- 3.2.1. Continue comparative study of the Aquatic Warbler breeding success in different habitats (mires Dikoe, Sporovo, Zvanets, Servech).
- 3.2.2. Continue research into the impact of vegetation burning, peat fires and hydrological regime on the breeding population of the Aquatic Warbler.
- 3.2.3. Take part in the elaboration of an international program of joint research and monitoring within the species range.
- 4.1. Involve APB-BirdLife Belarus in projects on the conservation of Aquatic Warbler habitats.
- 4.2. Use the Aquatic Warbler as a symbol of wetland conservation.
- 4.3. Promote the species' value and the need for its conservation.

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Date

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## **Belgium**

- 1.1.1 Support initiatives by BirdLife and other European organisations to promote policies in Europe which favour the maintenance of traditional farming practices at current and former breeding sites.
- 1.1.2. Promote the preparation and implementation of a national action plan.
- 1.1.2 Support initiatives by BirdLife and other European organisations to ensure that the Aquatic Warbler and its habitats (including breeding, migration and wintering sites) are given full protection through national and international legislation.
- 2.1 Consider need for action on breeding populations in eastern Europe.
- 2.3.1 Ensure the protection and appropriate management of all Belgian sites regularly used by Aquatic Warblers on migration.
- 2.3.1 Oppose any development proposals which would adversely affect any regularly used (i.e. at least one bird seen in three years out of five) migration site. A definitive list of sites with past records of Aquatic Warblers and the numbers involved should be compiled and regularly updated.
- 2.3.1 Ensure appropriate management of reserves with regularly occurring Aquatic Warblers.
- 3.1.3 Identify the major Belgian migration sites and establish their importance to Aquatic Warblers. Restore ringing activities at appropriate reserves, encourage the continuation of current ringing programmes and ensure more systematic trapping of Aquatic Warblers at a range of sites in Belgium in order to establish more accurately the numbers involved.
- 3.1.3 Monitor the numbers of Aquatic Warblers on passage through Belgium.
- 3.1.4 Identify habitat requirements of the Aquatic Warbler while on passage through Belgium.

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Date

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## **Bulgaria**

- 1.1.2. Encourage the authorities to give legal protection to the species (including it in the National and Regional Red Data Books) and promote the preparation of a National Action Plan.
- 2.3.1 Ensure the protection and appropriate management of all Bulgarian sites regularly used by Aquatic Warblers on migration.
- 2.3.1 Ensure appropriate management of reserves with regularly occurring Aquatic Warblers.
- 3.1. Promote research in order to identify and characterise the main passage sites.
- 3.1.3 Identify the major Bulgarian migration sites and establish their importance to Aquatic Warblers.
- 3.1.3 Monitor the numbers of Aquatic Warblers on passage through Bulgaria.
- 3.1.4 Identify habitat requirements of the Aquatic Warbler while on passage through Bulgaria.

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## France

- 1.1.1 Support initiatives by BirdLife and other European organisations to promote policies in Europe which favour the maintenance of traditional farming practices at current and former breeding sites.
- 1.1.2. Promote the preparation and implementation of a national action plan.
- 1.1.2 Support initiatives by BirdLife and other European organisations to ensure that the Aquatic Warbler and its habitats (including breeding, migration and wintering sites) are given full protection through national and international legislation.
- 2.1 Consider need for action on breeding populations in eastern Europe.
- 2.3.1 Ensure the protection and appropriate management of all French sites regularly used by Aquatic Warblers on migration.
- 2.3.1 Oppose any development proposals which would adversely affect any regularly used (i.e. at least one bird seen in three years out of five) migration site. A definitive list of sites with past records of Aquatic Warblers and the numbers involved should be compiled and regularly updated.
- 2.3.1 Ensure appropriate management of reserves with regularly occurring Aquatic Warblers.
- 3.1.3 Identify the major French migration sites and establish their importance to Aquatic Warblers. Restore ringing activities at appropriate reserves, encourage the continuation of current ringing programmes and ensure more systematic trapping of Aquatic Warblers at a range of sites in France in order to establish more accurately the numbers involved.
- 3.1.3 Monitor the numbers of Aquatic Warblers on passage through France.
- 3.1.4 Identify habitat requirements of the Aquatic Warbler while on passage through France.

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Date

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## Germany

- 2.1.1. Prepare and implement habitat management plans in Brandenburg, especially on the lower Odra river.
- 2.2.6. Encourage low-density grazing (1–2 cattle/ha) with the native breed of cows at Aquatic Warbler sites after June, especially at the Baltic Sea coast.
- 2.4. Promote habitat restoration in Mecklenburg-Vorpommern (especially at potential breeding sites such as Peenetalmoor, Grosser Wotig, Struck and Kooser Wiesen) and Brandenburg, where at least 2,000 ha is suitable for recolonisation. The managers of the Lower Odra National Park should restore habitats for the Aquatic Warbler, in particular because this species could suffer from habitat losses following restoration of alluvial forests.
- 3.1. Monitor the population.

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## **Hungary**

- 2.2. Maintain the water level in Kunkápolnási mocsár and Nagyrét marsh (Hortobágy National Park) by artificial flooding, in case of (e.g.) lack of winter precipitation.
- 2.2.4. Promote a ban on mowing and burning in areas where they cause disturbance to breeding birds.
- 2.4.1 Continue wetland restoration programmes in other sites of the Hortobágy National Park that are suitable for the species, since its population is highly localised and therefore highly endangered.
- 3.1. Monitor the population in the Hortobágy National Park.
- 3.1.2. Survey unprotected areas in search of new breeding populations.

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**Latvia**

2.1.1. Ensure proper management at Lake Liepāja as well as other sites with suitable breeding habitat for Aquatic Warblers.

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## **Lithuania**

- 2.1.1. Approve a Species Action Plan for the whole country; and prepare management plans for all known breeding sites.
- 2.2.1. Undertake habitat management at Žuvintas Biosphere Reserve, particularly mowing of the sedge meadows for hay-making.
- 3.1.2. Monitor the population regularly. There are about 25 potentially suitable breeding sites for Aquatic Warbler in east and south Lithuania. There is an urgent need to do special surveys in these regions.

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## **The Netherlands**

- 1.1.1 Support initiatives by BirdLife and other European organisations to promote policies in Europe which favour the maintenance of traditional farming practices at current and former breeding sites.
- 1.1.2. Promote the preparation and implementation of a national action plan.
- 1.1.2 Support initiatives by BirdLife and other European organisations to ensure that the Aquatic Warbler and its habitats (including breeding, migration and wintering sites) are given full protection through national and international legislation.
- 2.1 Consider need for action on breeding populations in eastern Europe.
- 2.3.1 Ensure the protection and appropriate management of all Dutch sites regularly used by Aquatic Warblers on migration.
- 2.3.1 Oppose any development proposals which would adversely affect any regularly used (i.e. at least one bird seen in three years out of five) migration site. A definitive list of sites with past records of Aquatic Warblers and the numbers involved should be compiled and regularly updated.
- 2.3.1 Ensure appropriate management of reserves with regularly occurring Aquatic Warblers.
- 3.1.3 Identify the major Dutch migration sites and establish their importance to Aquatic Warblers. Restore ringing activities at appropriate reserves, encourage the continuation of current ringing programmes and ensure more systematic trapping of Aquatic Warblers at a range of sites in the Netherlands in order to establish more accurately the numbers involved.
- 3.1.3 Monitor the numbers of Aquatic Warblers on passage through The Netherlands.
- 3.1.4 Identify habitat requirements of the Aquatic Warbler while on passage through The Netherlands.

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Date

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## **Poland**

- 1.1 Promotion of the conservation of the Aquatic Warbler in protected areas and in areas utilised for economic purposes.
- 2.1 Promotion of the adequate conservation of the main breeding sites of the Aquatic Warbler.
  - 2.1.1 Launch of measures to make a habitat inventory.
- 2.2 Development of methods for the conservation of the Aquatic Warbler.
- 2.3 Launch of the designation of sites for the ecological restoration of Aquatic Warbler habitats.
  - 2.4.1 Promotion of measures to ecologically restore Aquatic Warbler habitats.
    - 3.1 Implementation of Aquatic Warbler monitoring.
4. The measures to conserve the Aquatic Warbler will be taken particularly at its main living sites:
  1. Biebrza valley.
  2. Upper and Middle Narew valley.
  3. Lublin Polesie.
  4. Lower Odra valley (Odra floodplain, especially southern part of Swina mouth).

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Date

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## **Russian Federation**

1.1.2. Promote legal protection of the Aquatic Warbler in the regions of the Russian Federation.

1 Promote the protection of those areas holding permanent breeding populations

3.1.2 Status and distribution of the Aquatic Warbler in Russia, especially in West Siberia, need to be precisely determined by further surveys in regions which have not been adequately checked yet. Schemes such as the Important Bird Areas programme should be promoted as a means of identifying Aquatic Warbler sites.

3.2. Investigate the processes and reasons for population fluctuations and the periodic changes of nesting places, including by systematic monitoring and inventory.

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## **Senegal**

- 1.1.1. Protection of wintering sites.
- 2.3.1. Appropriate management of wintering sites.
- 3.1.4. Identify wintering sites.
- 3.1.5. Research into habitat characteristics of wintering sites.

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## **Spain**

- 1.1.2 The species is strictly protected. An evaluation of a possible change in its status in the National Catalogue of Endangered Species is suggested.
- 2.3.1 Identify and protect sites used by the species, and elaborate habitat management plans.
- 3.1.5 Investigate the species' requirements and use of habitats.
- 3.2 Undertake monitoring studies.
- 4.2 Raise awareness of the species.
- 4.3 Implement environmental education concerning the species.

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## Ukraine

- 2.1. Elaborate management plans especially for the major upper Pripjat breeding sites (especially a Zalessye, Torople, Vizhery mires) and implement them: evaluation of the status and regulation of the fen mires hydrological regime, improvement of hydroregime;
  - limiting of mire overgrowth by willow shrubs and reedbeds;
  - maintaining extensive use of mires by hand-cutting where possible, or management by winter burning.
- 2.1.1. To promote the creation of protected areas for main breeding groups of Aquatic Warbler:
  - the creation of National Park in the Upper Pripjat valley between Retchica and Lyubyaz (Volyn reg.);
  - the creation of zakazniks of national importance in Lower Turiya (Vizhery mire), in Styr valley (near Chetvertnya);
  - the joining the zakaznik of local importance "Zhevak" (more than 200 males) to zakaznik of national importance "Doroginsky" (Chernigiv reg.);
- 3.1. Realization of monitoring work in six key sites:
  - the Desna-Dnieper population: Supoy and Uday;
  - the Pripjat population: between Vetly and mouth of the Tsir river (Pripjat valley); between Retchitsa and Pidgirya (Pripjat valley); Vizhery mire (Turiya valley); near Chetvertnya (Styr valley).
- 3.1.2. Continue the national survey to clarify distribution and numbers in regions which have not been adequately surveyed.
- 3.1.3 Supporting of the ringing of the Aquatic Warbler in breeding habitats and in places of stops during migration. Monitor the numbers of Aquatic Warblers on passage through Southern Ukraine.
- 4.1. Promote Ukrainian Union for Bird Conservation (UTOP - BirdLife Partner in Ukraine) as a strong bird conservation NGO.

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Date

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## United Kingdom

- 1.1.1 Support initiatives by BirdLife and other European organisations to promote policies in Europe which favour the maintenance of traditional farming practices at current and former breeding sites.
- 1.1.2. Promote the implementation of the national action plan.
- 1.1.2 Support initiatives by BirdLife and other European organisations to ensure that the Aquatic Warbler and its habitats (including breeding, migration and wintering sites) are given full protection through national and international legislation.
- 2.1 Consider need for action on breeding populations in eastern Europe.
- 2.3.1 Ensure the protection and appropriate management of all UK sites regularly used by Aquatic Warblers on migration.
- 2.3.1 Oppose any development proposals which would adversely affect any regularly used (i.e. at least one bird seen in three years out of five) migration site. A definitive list of sites with past records of Aquatic Warblers and the numbers involved should be compiled and regularly updated.
- 2.3.1 Ensure appropriate management of reserves with regularly occurring Aquatic Warblers.
- 2.3.1. Provide advice to owners/managers of migration sites in order to ensure appropriate management.
- 3.1.3 Identify the major UK migration sites and establish their importance to Aquatic Warblers. Restore ringing activities at appropriate reserves, encourage the continuation of current ringing programmes and ensure more systematic trapping of Aquatic Warblers at a range of sites in the UK in order to establish more accurately the numbers involved.
- 3.1.3 Monitor the numbers of Aquatic Warblers on passage through the UK.
- 3.1.4 Identify habitat requirements of the Aquatic Warbler while on passage through the UK.

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**BirdLife International**

- 3.1.3. Co-ordinate the identification of passage sites.
- 3.1.4. Co-ordinate the identification of wintering sites.
- 3.1.7. Develop and implement an international monitoring programme.
- 3.2.3. Develop and continuously update a data base for all breeding sites (IBAs).

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