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*“Strengthening Flyway Conservation in a Changing World”*

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**Conservation Brief for the AEWA International Single  
Species Action Plan for the Conservation  
of the Great Snipe**

*Gallinago media*

Agreement on the Conservation of  
African-Eurasian Migratory Waterbirds (AEWA)

**Conservation Brief for the AEWA International  
Single Species Action Plan for the Conservation  
of the Great Snipe**

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*(To be used in conjunction with the ISSAP published in November 2004 – please access [here](#))*

**Produced by the AEWA Technical Committee  
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*Prepared with funding from the Department for Environment, Food and Rural  
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## OVERVIEW AND SUMMARY

The AEWI International Single Species Action Plan (ISSAP) for the conservation of the Great Snipe was published in November 2004. The 7<sup>th</sup> session of the Meeting of the Parties to AEWI in 2018 requested the AEWI Technical Committee to produce a shorter conservation brief for this ISSAP, since it was lacking an international coordination mechanism, in order to highlight any new scientific information and/or threats as well as to boost implementation and re-engage relevant range states. This Conservation Brief shall be used in conjunction with the full ISSAP.

Great Snipe (*Gallinago media*) is known to breed in ten countries and is considered to comprise two populations which need to be considered as separate management units for conservation purposes, at least within their breeding range (Ekblom *et al* 2007). The Scandinavia/West Africa population breeds in upland areas along the treeline in Norway and Sweden while the Western Siberia & NE Europe/SE Africa population occurs in wetlands and wet meadows in the Baltic States, Poland, Belarus, Ukraine and in Russia, where c80-90% of the population breeds. This species is listed as globally Near Threatened because it is thought to be experiencing a moderately rapid population decline, owing primarily to habitat loss and degradation, as well as possibly hunting pressure. Its population size is poorly known, with estimates varying from c. 118,000–1,051,000 individuals (Wetlands International 2012). However, 300,000–400,000 mature individuals seems to be a more realistic number (V.Morozov pers.assessment in Sviridova, Morozov, 2020 ) while estimation of effective breeding populations, in particular of breeding females, are unknown in most parts of the breeding range. Recent work suggests continuing, possibly larger, declines in some areas, for example 55% in Poland between 2010 and 2020. Some worrying trends include a decrease in lek size in many areas and longer-term concerns about climate impacts.

The Great Snipe is migratory and known as a passage migrant from 50 countries and wintering in 35 countries. The species has been demonstrated to fly huge distances of up to 6900 kms non-stop. Recent research establishes that birds from the western breeding population have one long stopover in West Africa in August/September, and then continue to the main wintering area in the Congo Basin where they spend most of the winter (Lindström *et al.*, 2021). According to recent satellite tracking, birds from the centre and north of European Russia migrate to Africa in a fairly wide belt; most of them with stopovers in Europe. After crossing the Sahara, birds move widely in the savanna and forest-savanna regions from Eritrea up to Ghana. In October/December they relocated to Central Africa, from the Congo Basin south to Zambia (T.Sviridova *et al.*, unpublished data). Populations in wintering areas remain poorly known and recording such a widely scattered and cryptic population is difficult. Generally, it has been concluded that conservation effort is best focused on the breeding range, although there may be some critical concentrations of birds, for example in stopover sites in the Ethiopian Highlands and Niger, and wintering areas in Congo and Western Tanzania. As these are discovered it will be important to ensure they remain protected and suitably managed, and that any hunting is controlled.

The Action Plan developed in 2004 set out a number of key principles for Great Snipe conservation although it left many issues of detail, responsibility and scheduling to a future anticipated suite of national plans. There is some active research being undertaken on Great Snipe in almost all breeding range states which is encouraging, although the largest population in Russia is also the least known. Work is perhaps most advanced in Poland where there has been funding for two projects via the LIFE Nature programme, as well as potential funding through EU Agri-environment programmes. National Plans have been produced in Poland, Belarus, Estonia and Sweden. Research has clarified the importance of both good lekking and nesting habitat but also the need for extensive feeding habitat in the surrounding lands via a matrix of different grasslands. The importance of retaining adequate soil moisture and the benefits of protecting against predators are also established. However much remains to be done to put this into practice, especially outside of land which is in state-owned protected areas or conservation ownership.

More work is planned, for example through the remainder of the Polish LIFE project [LIFE 3.0 - LIFE Project Public Page \(europa.eu\)](#) and through satellite tracking of Estonian and Russian birds. Understanding the distribution, population and conservation needs of the species in Russia is an obvious overriding priority.

Priority Actions will vary across countries and populations and while funding and agri-environment mechanisms to achieve conservation exist in EU member states, work is still needed to adapt them to specific needs of Great Snipe. In most other range states, organising and funding conservation is even more challenging. Key sites need to be better protected officially as protected areas or informally through agreements with landowners and managers. Management needs are to an extent common to most countries and require a) identification of key, stable leks with 5+ males in the last 5 years, b) assessment of threats and development of management plans c) ceasing drainage and maintaining appropriate water levels throughout breeding season d) restoration of habitats through removal of scrub and cutting and grazing of vegetation and e) introducing predator control and/ or predator exclusion fences around key leks.

This is a species where there would appear to be benefit from a formal revision to the International Action Plan as much has been learned about the species since its publication. A key recommendation is to encourage the production of robust National Action Plans, where actors feel they will be a useful tool. These could provide a more comprehensive list of actions with assigned responsibilities that will give leverage to lobby individual governments to implement desired actions or provide funding. In some cases, Action Plans might be best designed for a suite of species occupying similar habitat to Great Snipe.

There is some good informal collaboration between experts across the breeding range and this would provide the basis of an International Species Working Group although more Government input is required. Key to its success would be the appointment of an active Coordinator and the provision of adequate funds for networking costs. Opportunities for exchange visits and other meetings can be taken when available, for example as a component of funded projects.

## 1. INTRODUCTION & BASIC DATA

- Conservation Brief for the AEWA International Single Species Action Plan for the Conservation of the Great Snipe (*Gallinago media*). Full action plan at: [https://www.unep-awea.org/sites/default/files/publication/ts5\\_great\\_snipe\\_0.pdf](https://www.unep-awea.org/sites/default/files/publication/ts5_great_snipe_0.pdf)
- Compiled by Paul Buckley. Additional experts contributing: Robert Ekblom, Ake Lindstrom, (Sweden), John Ake Kallas (Norway), Daniel Piec, Michal Korniluk (Poland), Tatiana Sviridova, Vladimir Morozov (Russia), Edward Mongin (Belarus), Leho Luigujõe (Estonia), Iurii Struss (Ukraine), Neil Baker (Tanzania).
- **Technical Committee adoption:** *Adopted by the AEWA Technical Committee in May 2022*
- **Introduction:** The original International Species Action Plan was produced in 2002, adopted at MOP2 in 2002, and formally published in 2004. It was originally published with timelines for implementation through to 2005 but was considered current beyond that date. It was extended through agreement of Resolution 7.5 at MOP 7 through the period from 2019 to 2028. Recommendations were to consider the production of this Conservation Brief, and to re-establish efforts to enhance international coordination of implementation. This was proposed at the time of the ISSAP publication but never formally put into place although some informal collaborations do occur.

**Table 1. Review of Basic Data**

Populations covered by the Plan:	Western population	Eastern population
AEWA Table 1 category, also indicating possible change since ISSAP adoption (Y/N – if yes, indicate new versus old listing)	Column A 4 SPEC 1, Annex 1 of EU Birds Directive 79/409 Annex II of CMS, Annex II of Bern Convention No changes since Action Plan	Column A 4 SPEC 1, Annex 1 of EU Birds Directive 79/409 Annex II of CMS, Annex II of Bern Convention No changes since Action Plan
Change in global, regional and/or sub-regional Red List status (Y/N - if yes, indicate new versus old listing)	NT No change  Considered Vulnerable within EU area	NT No change  Considered Vulnerable within EU area but LC across Europe as a whole (BirdLife International 2021)
Change in Principle Range States, i.e., countries regularly hosting over 1% of the biogeographic population (Y/N). If yes list changes per population.	Estimated at 6-17,000 prs and possibly stable in Norway and Sweden  Population thought stable although long term climate related threats	Estimated at c. 260,000 prs in 2004 (predominantly in Russia). Unclear but likely decline especially in Southern parts of range A few birds have nested in Finland recently (2-17 prs). Most of range - continuing decline where studied well e.g. c55% in Poland 2010-20, 45% in Estonia 2000-15, 35-45% in Belarus 2010-2020

## 2. ACTION FRAMEWORK REVIEW

- **Adopted International Action Plan Goal and Purpose:**

Long term objective: to keep Great Snipe off the Red List.

Indicators include: 1) Increased knowledge on numerical distribution and monitoring of population changes 2) Increase and use of knowledge about hunting to regulate pressure 3) Increase and use knowledge of habitat needs and diet to identify key habitats and develop management practices 4) monitoring of key habitats 5) Inventory and monitoring of key areas 6) Develop habitat management requirements and enable their implementation.

**The Table below is adapted from the original Action Plan action framework (now extended to 2028) showing the objectives, associated problems, results and actions into the new action framework template adopted at MOP7 (shown below). Changes in the prioritization of actions based on the revised threat assessment and additional recommendations for action are shown in red font.**

**Table 2. Review of Action Framework (objectives adapted and summarised from original action plan)**

<i>Objective: To stop the population decline of the Great Snipe</i>						
<b>Problem</b>	<b>Result</b>	<b>Action</b>	<b>Priority (Revised)</b>	<b>Time scale (Revised)</b>	<b>Organisations responsible (needs to be refined in each country)</b>	<b>Implementation status and recommendations</b>
Mortality of adult and young Great Snipe due to intentional or unintentional human activities	Result 1.1 Ensure optimal conditions for survival of chicks and adults	1.1.1. Stop all exploitation of the boreal part of the Eastern population of Great Snipe through banning of hunting and (if necessary, delaying common snipe hunting) Applicable to: Belarus, Baltic States, Ukraine and Western part of Russia	Medium	2027	Government agencies, NGOs, hunting organisations	No changes known  Better control may be more achievable than bans in some countries. <b>Undertake bag size assessment in Belarus and Ukraine, and assess the current sustainability of hunting for national and local populations</b>
		1.1.2. Stop over-exploitation through establishment of sustainable hunting  Applicable to: Eastern bush tundra part of Russia, non-breeding range	Medium	2027	Government agencies, NGOs, hunting organisations	No changes known Greater knowledge of some passage and wintering sites shows some sites have important populations. Hunting in these may need better control e.g., in NE Africa. <b>Seek to assess levels sustainability of hunting in key wintering areas where hunting occurs.</b>

		1.1.3 Stop disturbance by Pointing dogs in the breeding season through banning training in breeding habitat Applicable to: Eastern population	Medium	Ongoing	Government agencies, NGOs, hunting organisations	This has been secured in Russia although there is a possibility it may be overturned in some specially assigned sites by new Hunting Act, which began to be implemented on 1/1/2021
The extent and quality of Great Snipe habitat appears to be declining, especially in its breeding range	Result 1.2 Ensure sufficient quantity and good quality of relevant habitats	1.2.1. Maintain or enhance the current status of habitats through appropriate management Applicable to: All countries	Medium  Revise to High (for Tundra Russia and migration range states)  High  Revise to Essential (all others)	Ongoing	Government agencies, NGOs, private landowners	Some management has been implemented for GS or for suite of species esp in protected areas in Poland, Belarus and Baltic states.  Good practice in Eastern population well established and recommend agreeing plans for all key Leks with >5 males, maintaining appropriate water levels throughout breeding season, removal of scrub and tall vegetation, cutting and grazing from 1 July, introducing predator control.
		1.2.2 Improve protection status by encouraging a protected status for all sites of international importance for the Great Snipe (inc. SPA for EU States) Applicable to all countries		Ongoing	Government agencies, NGOs,	Aim for 50% coverage in Poland (achieved - now c. 90%), Baltic States and Ukraine, 25% in Belarus and 10% elsewhere. More sites protected but no coordinated data for most states.  Recommend to national and regional agencies to stop recultivation of grasslands

						<p>into arable land around key lek areas, and establish reserve network controlled by state or private conservation bodies</p> <p>Compile inventory of key stopover/wintering sites that qualify as IBAs.</p> <p>As key stopover/wintering areas are identified, there is a need to build Great Snipe into any conservation plans for these areas.</p>
		<p>1.2.3 Develop a proper management system for protected sites, through the development of management plans. Measures should be balanced with overall conservation objectives of the protected areas, the Great Snipe being one component among others in the functional system (EU States plus Belarus, Ukraine and boreal parts of Russia)</p>	High	Ongoing	Government agencies, NGOs, Research institutes	<p>Management Plans at some sites in Poland, Belarus, Russia, Baltic States</p> <p>Write action plans for key sites that do not have them already.</p> <p>Recommend set up local wader multi-stakeholder groups, adjust water and agricultural management practices in line with Natura 2000 and other protected area management plans. In EU target appropriate agri-environmental schemes.</p>
		<p>1.2.4 Evaluate possibilities for the maintenance and recovery of habitats (EU States plus Belarus,</p>	Medium	Ongoing	Government agencies, NGOs, Research institutes	<p>Some opportunities occur through land abandonment because of agriculture recession (e.g. in Russia) but this eventually leads to</p>

		Ukraine and boreal parts of Russia)				habitat succession which removes Great Snipe habitat. Recommend restoration through agri-environment approaches with vegetation management, water retention and predator control. Develop incentives and engage private landowners in conservation of Great Snipe through land stewardship (no obvious mechanism outside of EU but same principles can apply)
		1.2.5 Encourage the re-establishment of former breeding areas as opportunities permit (Germany, Netherlands, Finland, Denmark, S. Sweden)	Low	Ongoing	Government agencies, NGOs, Research institutes	None known that target Great Snipe specifically although many peatland and wetland projects. A small population has re-established naturally in Finland
Inadequate knowledge of great snipe populations, ecology and conservation requirements	1.3 Ensure sufficient knowledge to optimise future action plans	1.3.1 Update distribution maps and national estimates of breeding populations (All range states)	High	2026	Government agencies, NGOs, Research institutes	Some good research undertaken although only good population data in Poland, Estonia and Belarus. Recommend updates in Russia, and Ukraine. Good progress with understanding of migration in Western population. Continue to identify key stopovers and wintering sites for both populations.

		1.3.2 Develop and run monitoring of the breeding population, habitats and threats (All breeding range states)		2027	Government agencies, NGOs, Research institutes	Some systematic monitoring in parts of countries, good data in Poland, Belarus. National monitoring in Sweden but has lapsed. <b>Recommend a) re-establish national monitoring in Sweden and Norway b) select number of key lek areas in different habitat types for annual monitoring, adding new sites as they are found. This would be useful everywhere but at least start in one or two countries.</b>
		1.3.3/4 Inventory of key sites, map the distribution of key habitats and determine habitat threats (All breeding range states)		2025	Government agencies, NGOs, Research institutes	Some progress. Work in Poland through EU LIFE programme is accepted as offering relevant advice by experts in other states also. Progress in Estonia through several projects, and in the centre of European Russia. The EBBA2 project has modelled the distribution of all species, but the model for Great Snipe based on the timed sampling plots was not successful <b>Recommend development of predicted distribution models for Great Snipe based on analyses of potential habitats to better estimate population, noting earlier failure.</b>

		1.3.5 Improve knowledge on habitat use and diet (all range states)		2024 onwards	Government agencies, NGOs, Research institutes	Some progress. through Polish EU LIFE programme offers relevant advice to experts in other states also. Some microhabitat and diet studies have been done also in Estonia, Norway, Sweden. Recommend to further study a) spatial utilisation of lek areas to assess the macro- and micro-habitat usage, and preferable land use b) within-season movements and migration patterns c) impact of predation d) survival of chicks and causes of mortality
		1.3.6 Develop and test management practices for re-establishing populations (Former range states and boreal part of Eastern population)		2027	Government agencies, NGOs, Research institutes	Increased knowledge but no active preparation for population re-establishment
		New Action: Investigate and monitor potential impacts due to climate change e.g changing treeline (Scandinavia), faster growth of shrubs in the main bush-tundra zone (Russia) and drying of wetlands and formulate mitigation and adaptation	High	Ongoing	Government agencies, NGOs, Research institutes	

		responses (All breeding range states)				
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In the action plan timescales are deferred to the National Plans. Timescales added here are indicative (based on general indicators cited in the plan) and apply only in areas where action not already completed. Responsibilities are also allocated generically according to text discussions but need national refinement.

Additional recommendations from experts to actively encourage development of National Action Plans (revision nearing completion in Estonia but would also be of value in Latvia, Ukraine, a revision in Sweden and perhaps elsewhere) and more active sharing of information and knowledge.

### 3. BIOLOGICAL ASSESSMENT

- Delineation of populations; the population remains delineated into Scandinavia/West Africa and Western Siberia & NE Europe/SE Africa, with the latter further sub-divided into the boreal zone and the bush-tundra habitats in the north of the Russian Federation.
- Distribution throughout the annual cycle; tracking studies (e.g. Klaassen et al 2011) and assessments of hunting practice (e.g. Debayle et al 2017) have given more detail on the timing and pattern of migration demonstrating where stop over areas occur on northward and southward migrations and distinctions between sexes and adults/juveniles. Some information on wintering populations especially for Western population – suggesting areas of main occupation are more concentrated than previously thought (Debayle et al 2017).
- Habitat requirements: considerably enhanced understanding of habitat requirements within breeding areas, especially from Poland, Belarus studies (Korniluk and Piec 2016, Korniluk et al., 2020, Mongin and Davidyonok 2019), and developing understanding of measures needed to implement habitat conservation.
- Survival and productivity. Limited progress but studies in Norway (Kölzsch et al 2007) and some research planned in next two years in Poland. Studies e.g., from Estonia and Belarus shows adverse impact of drought/drying of wetlands on productivity.

**Table 3. Population size and trend by country**

Country	Breeding numbers (Estimated lekking males – although cited as ‘pairs’ in ISSAP) (1 <sup>st</sup> row at time of ISSAP, 2 <sup>nd</sup> row most recent data)	Quality of data	Year(s) of the estimate	Breeding population trend in the last 10 years (or 3 generations)	Quality of data	Maximum size of migrating or non-breeding populations in the last 10 years (or 3 generations)	Quality of data	Year(s) of the estimate
Norway	5,000-15,000 <sup>1</sup>	Semi-quantified	2000	Stable?	Semi-quantified			
	13,500 <sup>2</sup>	Estimate	2014	Stable?	Estimate			
Sweden	1,000-2,000 <sup>1</sup>	Estimate	2000	Stable?	Estimate			
	Max 1,800 (in 230 leks) <sup>3</sup>	Estimate (extrapolation from limited survey)	2007	Stable?	Estimate			
Russia	>250,000 <sup>1</sup>	Poor	2002	Decline (esp. in South)?	Poor			
	150-200,000 (50-120,000 European Russia) <sup>4</sup>	Poor	2015	5-10% Decline 2001-12	Poor (Figures based on extrapolation but could also be some)			

Country	Breeding numbers (Estimated lekking males – although cited as ‘pairs’ in ISSAP) (1 <sup>st</sup> row at time of ISSAP, 2 <sup>nd</sup> row most recent data)	Quality of data	Year(s) of the estimate	Breeding population trend in the last 10 years (or 3 generations)	Quality of data	Maximum size of migrating or non-breeding populations in the last 10 years (or 3 generations)	Quality of data	Year(s) of the estimate
					redistribution across zones)			
Ukraine	500-700 <sup>1</sup>	Semi-quantified	2002					
	300-400 <sup>5</sup>	Estimate	2020	Decline?	Poor			
Belarus	4,600-6,000 <sup>1</sup>	Semi-quantified	2002	Decline				
	2,800-3,500 <sup>6</sup>	Semi-quantified	2020	Decline (35-45% since 2010)	Good			
Poland	600-800 <sup>1</sup>	Semi-quantified	2002					
	450 Males at known sites (perhaps 500-550 max) <sup>7</sup>	Good	2020	55% decline 2010-20	Good			
Estonia	600-800 <sup>1</sup>	Semi-quantified	2002					

Country	Breeding numbers (Estimated lekking males – although cited as ‘pairs’ in ISSAP) (1 <sup>st</sup> row at time of ISSAP, 2 <sup>nd</sup> row most recent data)	Quality of data	Year(s) of the estimate	Breeding population trend in the last 10 years (or 3 generations)	Quality of data	Maximum size of migrating or non-breeding populations in the last 10 years (or 3 generations)	Quality of data	Year(s) of the estimate
	330-430 <sup>8</sup>	Good	2020	Decline	Good			
<b>Latvia</b>	200-300 <sup>1</sup>	Semi-quantified	2000					
	420-570* <sup>8</sup>	Estimate	2015	Decline?	Poor			
<b>Lithuania</b>	200-400 <sup>1</sup>	Semi-quantified	2002					
	See Latvia	Estimate	2015	Decline?	Poor			
<b>Passage area</b>						Unknown	Poor	2002
						Unknown	Poor	
<b>Wintering area</b>						Unknown	Poor	2002
						Unknown	Poor	
<b>Overall</b>	<b>170,600-220,650<sup>9</sup></b>		<b>Most recent estimate</b>	<b>Decline</b>	<b>Poor</b>			

\* Estimated 2015 total for Latvia and Lithuania

1 – cited in original ISSAP 2004 – original data sources will vary

2 – Østnes et al (2014)

3 – Ekblom et al 2007

4 – Sviridova, Morozov, 2020 Morozov in litt.

5 – Iurii Strus in litt.

6 – Edward Mongin in litt.

7 – Michael Korniluk in litt.

8 – Leho Luigujõe in litt.

9 – Extrapolation from above data sources.

#### 4. PROBLEM ANALYSIS

- Conduct rapid review of threats identified in original problem analysis based on possible new information and following the IUCN Red List Threat Classification Scheme<sup>1</sup>, also noting threats no longer considered relevant for survival etc.

**Table 4. Threat review**

Threat identified in 2004 Action Plan (corresponding IUCN Code)	Identified for which population	Action Plan threat score (IUCN estimated score)	Revised threat assessment based on new evidence, if available
<b>Threats directly affecting the Great Snipe population.</b>			
Hunting (5.1.1, 5.1.2)	Eastern population outside EU	Some impact (Low 5)	Impact not truly known in Eastern population. Impact where concentrated at migration sites could be important but also needs further understanding.
Disturbance from recreation (6.1)	Eastern population	Some impact (Low 5)	Popularisation of nature tourism and wildlife photography has impact on selected leks in Poland
Predation (8.2.1)	All populations	Some impact (Low 5)	Probably increasing threat in some areas In Belarus and Russia. Abandoned farmland is also attractive to carnivores and in the centre of European Russia there is a high prevalence of nest predation (Sviridova in.litt.). Research from Poland suggests low impact on leks, but unknown for nests and chicks. Kölzsch et al (2007) showed varying levels of predation were correlated

<sup>1</sup> <https://www.iucnredlist.org/resources/threat-classification-scheme>

			breeding success in a study site in Norway.
<b>Threats affecting the quantity of the habitat</b>			
Agricultural intensification/abandonment (2.1, 2.3)	All populations in different ways but high in Eastern population (historically led to loss of population in South Sweden)	Some abandonment throughout but high in eastern EU and Russian populations Potential intensification through Eastern population (Medium 6)	Generally, abandonment and disappearance of pastures now seen as a greater threat than intensification, esp. in Ukraine and Russia. However, in Russia a polarisation with remaining farmland often becoming more intensive with loss of grasslands. Similar in EU with abandonment but also intensification of profitable areas, e.g., polders in Estonia
Afforestation (2.2)	Eastern population	Potentially high in EU states (Low 5)	Deliberate afforestation not raised by experts so perhaps less of a threat now. However, forest cover increasingly results from abandonment of former farmed areas. These threats interlinked e.g., increase in predators in abandoned farmland
Drainage and flood control (7.2.3, 7.3)	Eastern population	Some impact, potentially high (Medium 6)	Impact likely to rise in future due to climate change both due to more extreme droughts and floods and resulting mitigating measures. Renewal of drainage noted e.g., 5 cases in Belarus
Infrastructure development – urban, transport, energy (1.2, 3.3, 4.1)	All populations in different ways	Western population - some impact from wind/hydropower and ski and recreation development. Eastern – some from hydropower but also more from urban,	Commercial peat extraction is also a factor and should be included as a threat

		transport and oil and gas (Low 5)	
Potential effects of climate change (11.1)	All populations	Potentially high (Future Medium 6)	Long term impact in upland areas likely to be increasing threat for Western population due to altitudinal increase in tree line, where climate an important determinant of breeding success (Kölzsch et al 2007) as well as increased drying of wetlands due to potential loss of rainfall – implicated in lack of food for young and loss of three leks in Belarus
<b>Threats affecting the quality of the habitat</b>			
Agricultural practices and chemicals (9.3)	All populations	Some impact in Western populations. High impact across Eastern population (Medium 6)	Shifting from grazing of cattle leads to 1) loss of pastures, which are one of the preferable feeding habitats for GS 2) more fields are used for cereals rather than hay to feed cows, - less and less meadows and more arable lands
Contamination from oil, lead etc (9.2.1, 9.2.3)	Eastern population	Some impact (Low 4)	
Conflicting nature conservation goals (12.1)	Eastern population	Some potential impact across Eastern population (Low 4)	Examples causing loss of leks from Belarus

Possible new threats: Although cited, the threat from climate change likely to be increasing and warrants research and action. Noted in respect of altitudinal increase in Scandinavian treeline squeezing available habitat, but more widely for potential changes in wetlands due to increased drought and flood events, and resultant engineering works designed to ameliorate their effects.

## 5. CONTACTS & REFERENCES

### 5.1. Contacts

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