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International Single Species Action Plan for the Conservation of the Velvet Scoter

(W Siberia & N Europe/NW Europe Population)

Melanitta fusca

Supported by:
Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
based on a decision of the German Bundestag

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

European Union (EU)

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Produced by
Lithuanian Ornithological Society (LOD)
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Adopting Frameworks:
Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)
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Contents

Abbreviations and Acronyms

AEWA	African-Eurasian Migratory Waterbird Agreement
CFP	EU Common Fisheries Policy
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EU Birds Directive	Directive 2009/147/EC of the European Parliament and of the Council of 30 November on the conservation of wild birds
FACE	Federation of Associations for Hunting and Conservation of the EU
GES	Good Environmental Status (according to MSFD – see below)
HELCOM	Baltic Marine Environment Protection Commission, also known as Helsinki Commission
IBA	Important Bird Area
IUCN	International Waterbird Census
LIFE EuroSAP	EU funded LIFE project 'Coordinated Efforts for International Species Recovery (EuroSAP) (LIFE14PRE UK 002)'
MSFD	EU Marine Strategy Framework Directive
OSPAR	The Convention for the Protection of the Marine Environment of the North-East Atlantic
SEA	Strategic Environmental Assessment
SPA	Special Protection Area
WHSG	Wetlands International / IUCN SSC Waterbird Harvest Specialist Group

1.BASIC DATA

1.1 Species and populations covered by the Plan

There are two recognised distinct biogeographic populations of the Velvet Scoter:
1) Western Siberia & Northern Europe/North-western Europe (hereafter Northern Europe) and
2) Black Sea & Caspian (Wetlands International 2016).
This Single Species Action Plan for Velvet Scoter covers only the Northern Europe biogeographic population.

1.2 List and map of Range States[1]

Range states for the Northern Europe population of Velvet Scoter are listed in Table 1 and shown in Figure 1.

Table 1. Range states of the Velvet Scoter. Principal range states[2] – **in bold**; other range states (regular occurrence in low numbers – mean population of 200 or more) – normal text; occasional records – *in italics*. Based on EU Birds Directive Article 12 reporting for 2008–2012 data (for EU Member States) and IWC data for 2011–2014.

Breeding	Migration	Wintering
Estonia	**Denmark**	**Denmark**
Finland	**Estonia**	**Estonia**
Norway	**Finland**	**Finland**
Russian Federation	**Germany**	**Germany**
Sweden	**Latvia**	**Latvia**
Kazakhstan	**Lithuania**	**Lithuania**
	Norway	**Norway**
	Poland	**Poland**
	Russian Federation	**Russian Federation**
	Sweden	**Sweden**
		Belgium
		France
		Netherlands
		United Kingdom
	Albania, Bulgaria, Belarus, Croatia, Czech Republic, Greece, Hungary, Ireland, Italy, Macedonia, Montenegro, Serbia, Slovenia, Spain, Switzerland, Ukraine	

[1] Each Contracting Party to AEWA is equally responsible under the Agreement for all the AEWA species/populations they host as per the obligations set out in the AEWA legal text. All the countries which host a specific species (whether in small or large numbers) are considered Range States for that species. The identification of Principle Range States in AEWA Action Plans, is an approach used to prioritise coordinated international conservation efforts to those countries considered to be crucial for ensuring the favourable conservation status of the species/population in question.

It should be noted that, under no circumstances does the identification of Principle Range States in AEWA International Species Action Plans, diminish the legal obligations of potential remaining Range States which Contracting Parties to AEWA are to equally ensure the adequate protection and conservation of the species/populations in question, including through implementation of relevant actions from the respective Species Action Plan

[2] Principal range states: Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Norway, Poland, Russian Federation, Sweden.

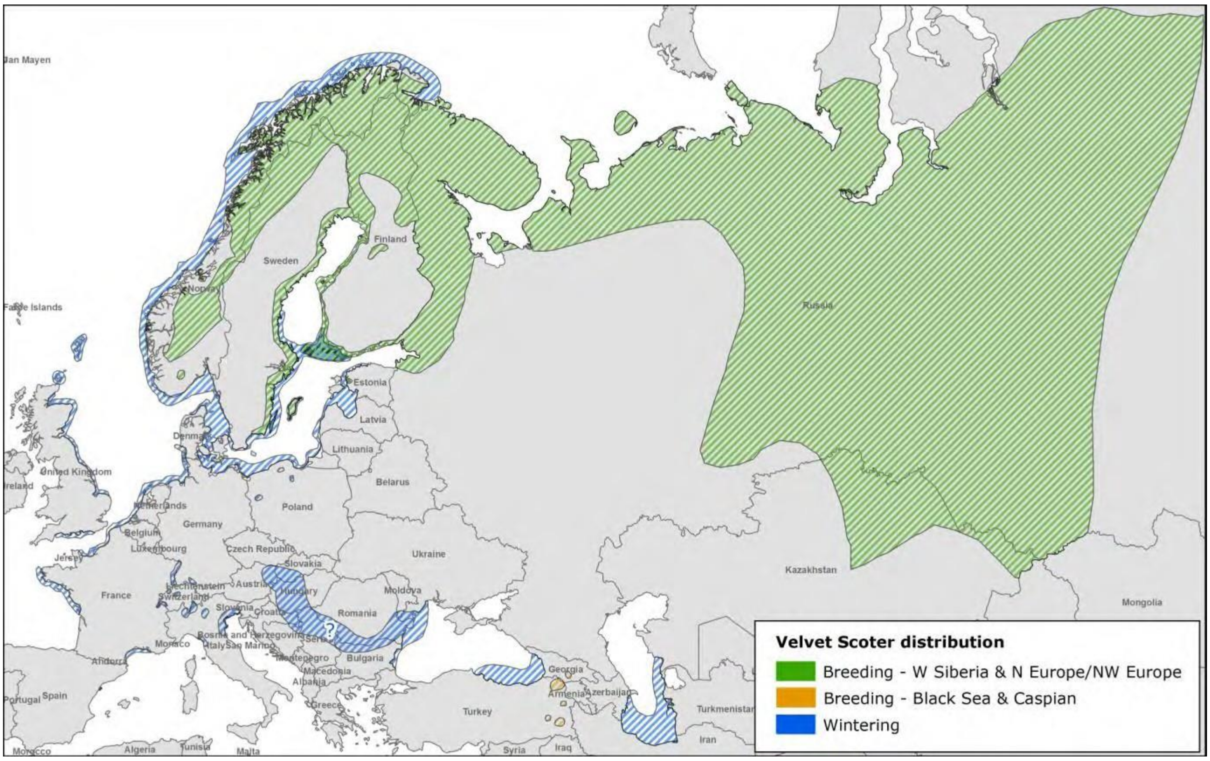

Figure 1. Map of breeding and wintering distribution of the Northern Europe population of Velvet Scoter (based on BirdLife International & NatureServe 2014, updated with information of national species experts).

Table 2. Summary of international conservation and legal status of the Velvet Scoter

IUCN Red List status	
IUCN Global assessment	Vulnerable (VU)[1]
IUCN European regional assessment	Vulnerable (VU)
IUCN EU27 regional assessment	Vulnerable (VU)
HELCOM/Baltic Sea breeding	Vulnerable (VU)
HELCOM/Baltic Sea wintering	Endangered (EN)
International legal status	
African-Eurasian Migratory Waterbird Agreement	Column A, category 1b
Convention on Migratory Species (Bonn Convention)	Appendix II
Convention on International Trade in Endangered Species (CITES)	Not listed
Bern Convention	Appendix III
EU Birds Directive	Annex II Part B[2]

1 – Previously (in 2012, 2013) assessed as Endangered (EN).

2 – Applies to Denmark, Germany, France, Ireland, Latvia, Finland, Sweden and United Kingdom, making this species a potential game species in these countries (currently hunted in Denmark and France only).

2. FRAMEWORK FOR ACTION

2.1 Goal

To restore the Western Siberia & Northern Europe/North-western Europe population of the Velvet Scoter (*Melanitta fusca*) to a favourable conservation status and remove it from the threatened categories on the global IUCN Red List.

2.2 Purpose

Significantly reduce negative anthropogenic impacts on survival and breeding success and understand the drivers of decline by 2028.

Detailed Framework for Action of this SSAP is presented in Table 3 below.

Table 3.1. Framework for Action for Objective 1 (Increase survival rates). Time scale: Immediate – launched within the next year; Short – launched within the next 3 years; Medium – launched within the next 5 years; Long – launched within the next 5-10 years; Ongoing – currently being implemented and should continue; Rolling – to be implemented perpetually (any action above from immediate to ongoing can be also qualified as rolling)

Direct problem: Additive anthropogenic mortality	***Objective 1: Increase survival rates***				
Underlying problems[3]	**Result**	**Action**	**Priority**	**Time scale**	**Organisations responsible**
Incidental by-catch of birds during the non-breeding season in fishing gear	Result 1.1. By-catch during non-breeding season is minimised and possibly eliminated	1.1.1. Develop and test seabird-friendly fishing gear suitable for Velvet Scoter. Applicable to: principal range states with wintering and moulting aggregations of VS (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	High	Ongoing	State research and fisheries institutions, NGOs, research institutions
		1.1.2. Deploy seabird-friendly fishing gear at key Velvet Scoter wintering and moulting sites as a mandatory requirement if and when such is available. Applicable to: principal range states with wintering and moulting aggregations of VS (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	High	Long / Rolling	State conservation and fishery agencies

[3] For details, see Annex 2.

Direct problem: Additive anthropogenic mortality	*Objective 1: Increase survival rates*				
Underlying problems[3]	**Result**	**Action**	**Priority**	**Time scale**	**Organisations responsible**
		1.1.3. Implement temporary closures of gill and trammel nets at key sites[4] for Velvet Scoter during times when they are present unless other effective mitigation measures (such as seabird-friendly fishing gear) are available and being used. Applicable to: principal range states with wintering and moulting aggregations of VS (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	High	Immediate / Rolling	State conservation and fishery agencies
		1.1.4. Standardised data on by-catch, fishing effort and capacity for all relevant fishing gears systematically collected on board fishing vessels and shared; data analysed for accurate by-catch estimates and identification of the most problematic fishing gears, vessels, locations. Report Velvet Scoter by-catch and fishing effort (as required under the EU CFP, the EU Seabird Plan of Action, EU Marine Strategy Framework Directive). Applicable to: principal range states with wintering and moulting aggregations of VS (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	High	Immediate / Rolling	State conservation and fishery agencies, NGOs, fishermen

4 Protected areas designated for the protection of Velvet Scoters

Direct problem: Additive anthropogenic mortality	***Objective 1: Increase survival rates***				
Underlying problems[3]	**Result**	**Action**	**Priority**	**Time scale**	**Organisations responsible**
Additional mortality from hunting	Result 1.2. The sustainability of legal hunting is ensured	1.2.1. Assess and manage the sustainability of hunting of Velvet Scoter using Adaptive Harvest Management methods and make appropriate recommendations (the ESIWG[5] will propose appropriate actions if the current levels of hunting are assessed to be unsustainable). Applicable to: DK, RU	High	Short / Rolling	WHSG & State hunting management agencies
		1.2.2. Assess the effectiveness of selective hunting of males. Applicable to: DK, RU	Medium	Short / Rolling	WHSG & State hunting management agencies
		1.2.3. Raise and maintain awareness amongst hunters and indigenous communities of the Velvet Scoter decline. Applicable to: DK, RU	Medium	Short / Rolling	State hunting management agencies, FACE and national hunting organisations
Direct and indirect mortality caused by oiling of birds following accidental oil or chemical spills	Result 1.3. Mortality by accidental oil or chemical spills from shipping and oil extraction is minimised and as far as possible avoided	1.3.1. Maintain appropriate safeguards to minimise the probability of accidental oil and chemical spills. Applicable to: principal range states with wintering and moulting	High	Ongoing / Rolling	State marine protection agencies, shipping agencies and port authorities, OSPAR and HELCOM

5 AEWA European Seaduck International Working Group

Direct problem: Additive anthropogenic mortality	***Objective 1: Increase survival rates***				
Underlying problems[3]	**Result**	**Action**	**Priority**	**Time scale**	**Organisations responsible**
and caused by disturbance from shipping lanes		aggregations of VS (DK, EE, FI, DE, LV, LT, NO, PL, RU, SE)			
		1.3.2. Ensure that there is an effective and well-resourced national oil and chemical spill emergency plan in each country, taking particular account of SPAs and other areas designated for the protection of marine waterbirds (considering cross-border linkages). Encourage critical evaluation of oil and chemical dispersants and their applicability for mitigating oil and chemical spills in the Baltic Sea with particular reference to waterbirds. Applicable to: principal range states with wintering and moulting aggregations of VS (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	High	Short	State marine protection agencies, OSPAR and HELCOM

Direct problem: Additive anthropogenic mortality	***Objective 1: Increase survival rates***				
Underlying problems[3]	**Result**	**Action**	**Priority**	**Time scale**	**Organisations responsible**
		1.3.3. Where needed, encourage modification of shipping lanes to avoid key concentrations of Velvet Scoter. Applicable to: principal range states with wintering and moulting aggregations of VS (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	Medium	Medium	State conservation, shipping, marine protection agencies, International Maritime Organisation
Direct and indirect mortality, caused by oiling of birds, as a result of diffused oil or chemical pollution and caused by disturbance from shipping lanes	Result 1.4. Mortality from diffused oil pollution is minimised and as far as possible avoided	1.4.1. Raise awareness amongst national bodies/agencies responsible for marine pollution about the threatened status of the Velvet Scoter and the threat from diffused oil and chemical pollution. Applicable to: principal range states with wintering and moulting aggregations of VS (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	High	Short / Rolling	State conservation agencies, HELCOM, OSPAR
		1.4.2. Maintain effective enforcement of existing regulations applying to the discharge of oil and chemicals. Applicable to: principal range states with wintering and moulting aggregations of VS (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	High	Medium / Rolling	State marine protection agencies, HELCOM, OSPAR

Direct problem: Additive anthropogenic mortality	***Objective 1: Increase survival rates***				
Underlying problems[3]	**Result**	**Action**	**Priority**	**Time scale**	**Organisations responsible**
Mortality from non-native predators during the breeding season	Result 1.5. Predation by non-native carnivores (e.g. American Mink, Raccoon Dog) is minimised and eliminated where possible	1.5.1. All breeding Range States to develop and implement national control plans for non-native invasive carnivores. Applicable to: principal range states with breeding VS (EE, FI, NO, RU, SE)	Medium	Medium / Rolling	State conservation agencies
Indirect adverse effects and direct mortality caused by construction and operation of windfarms in key wintering and staging sites	Result 1.6. Construction of windfarms in key Velvet Scoter sites is avoided and where this occurs the impacts on Velvet Scoter are considered and minimised	1.6.1. Take full account of Velvet Scoter conservation needs during spatial planning for coastal areas and EEZ. Applicable to: principal range states with wintering, staging and moulting aggregations of VS (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	High	Rolling	State conservation, planning and energy agencies
		1.6.2. Subject all coastal and offshore windfarms to SEA/EIA. Applicable to: principal range states with wintering, staging and moulting aggregations of VS (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	High	Rolling	State conservation, planning and energy agencies
		1.6.3. Develop year-round Velvet Scoter sensitivity maps at different spatial scales. Applicable to: principal range states with wintering, staging and moulting	High	Short	State conservation agencies

Direct problem: Additive anthropogenic mortality	*Objective 1: Increase survival rates*				
Underlying problems[3]	**Result**	**Action**	**Priority**	**Time scale**	**Organisations responsible**
		aggregations of VS (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)			
Lack of adequate protection and appropriate management of protected areas	Result 1.7. A network of protected and managed sites, covering all important sites throughout the Velvet Scoter lifecycle, is designated and maintained	1.7.1. Review, update and maintain the IBA list for Velvet Scoter. Applicable to: principal range states (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	High	Short / Rolling	BirdLife International, NGOs
		1.7.2. Evaluate the comprehensiveness and adequacy of SPA and other protected area networks and designate all qualifying sites. Applicable to: principal range states (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	High	Medium	State conservation agencies
		1.7.3. If need be, ensure that management plans are in place for designated sites in the protected area networks. Applicable to: range states with designated protected sites for VS (BE,	High	Medium – Long[6]	State conservation agencies

[6] Timescale should reflect importance of the site being considered.

Direct problem: Additive anthropogenic mortality	***Objective 1: Increase survival rates***				
Underlying problems[3]	**Result**	**Action**	**Priority**	**Time scale**	**Organisations responsible**
		DE, DK, EE, FI, FR, LV, LT, NO, NT, PL, RU, SE, UK)			
Reduction in survival (mostly indirectly) as a result of major marine developments	Result 1.8. Impact of potential new major developments, such as aquaculture, is minimised	1.8.1. Ensure appropriate SEA/EIA and/or cumulative impact assessment. Applicable to: principal range states (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	High	Short / Rolling	State conservation, environment and planning agencies
		1.8.2. Respond to potential negative impacts from proposed developments using Ramsar's Avoid-Minimise-Compensate planning framework.[7] Applicable to: principal range states (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	Medium	Short / Rolling	State conservation, environment and planning agencies

[7] For details, see Gardner *et al*. 2012 (available online at https://www.ramsar.org/sites/default/files/documents/library/bn3.pdf)

Table 3.2. Framework for Action for Objective 2 (Increase breeding success). Time scale: Immediate – launched within the next year; Short – launched within the next 3 years; Medium – launched within the next 5 years; Long – launched within the next 5-10 years; Ongoing – currently being implemented and should continue; Rolling – to be implemented perpetually (any action above from immediate to ongoing can be also qualified as rolling)

Direct problem: Low breeding success	***Objective 2: Increase breeding success***				
Underlying problems[8]	**Result**	**Action**	**Priority**	**Time scale**	**Organisations responsible**
Reduced breeding success as a result of disturbance during the critical stages of the breeding season	Result 2.1. Human access to key breeding areas in the Baltic archipelagos is minimised and prevented where possible during the breeding season	2.1.1. Review and augment as required the network of protected areas in order to cover all key breeding sites. Applicable to: EE, FI, NO, RU, SE	High	Medium	State conservation agencies
		2.1.2. Extend and enforce the period of access prohibition to the key breeding sites to fully include the Velvet Scoter breeding season. Applicable to: EE, FI, NO, RU, SE	High	Immediate – Medium / Rolling	State conservation agencies

[8] For details, see Annex 2.

Table 3.3. Framework for Action for Objective 3 (Close knowledge gaps). Time scale: Immediate – launched within the next year; Short – launched within the next 3 years; Medium – launched within the next 5 years; Long – launched within the next 5-10 years; Ongoing – currently being implemented and should continue; Rolling – to be implemented perpetually (any action above from immediate to ongoing can be also qualified as rolling)

Direct problem: Lack of knowledge	***Objective 3: Close knowledge gaps***				
Underlying problems[9]	**Result**	**Action**	**Priority**	**Time scale**	**Organisations responsible**
Lack of knowledge on essential population parameters of Velvet Scoter ecology, movements and distribution, as well as on scale and impacts of limiting factors	Result 3.1. Research and monitoring work on priority issues are undertaken	3.1.1. Strengthen and regularly implement a coordinated mid-winter census across the range. Applicable to: all range states with wintering aggregations of VS (BE, DE, DK, EE, FI, FR, LV, LT, NO, NT, PL, RU, SE, UK)	Essential	Immediate[10] / Rolling	State conservation and research agencies, NGOs
		3.1.2. Develop and undertake wide-scale telemetry studies and bird surveys to understand movements, identify moulting and bottleneck staging sites and understand population delineation. Applicable to: all range states (BE, DE, DK, EE, FI, FR, LV, LT, NO, NT, PL, RU, SE, UK)	High	Short – Medium	State conservation and research agencies, research institutions, NGOs
		3.1.3. Undertake genetic screening of birds for the purpose of population delineation.	Low	Medium	State research agencies, research institutions

[9] For details, see Annex 2.

[10] Next internationally coordinated mid-winter census is planned for January 2020.

Direct problem: Lack of knowledge	***Objective 3: Close knowledge gaps***				
Underlying problems[9]	**Result**	**Action**	**Priority**	**Time scale**	**Organisations responsible**
		Applicable to: all range states (BE, DE, DK, EE, FI, FR, LV, LT, NO, NT, PL, RU, SE, UK)			
		3.1.4. Undertake studies and establish monitoring of breeding success and survival at a representative suite of sites across the range, including impact of limiting factors. Applicable to: principal range states (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	Essential	Short / Rolling	State research agencies, research institutions
		3.1.5. Undertake a breeding distribution, population density and habitat mapping study and monitoring of breeding habitat conditions and changes, including impact of limiting factors. Applicable to: principal range states with breeding range of VS (EE, FI, NO, RU, SE)	High	Medium / Rolling	State research agencies
		3.1.6. Undertake an extensive study on foraging ecology and bio-energetics, including limiting factors, in the Baltic and on breeding grounds. Applicable to: principal range states with breeding, wintering and staging aggregations of VS (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	High	Short – Medium	State research agencies, research institutions

Direct problem: Lack of knowledge	***Objective 3: Close knowledge gaps***				
Underlying problems[9]	**Result**	**Action**	**Priority**	**Time scale**	**Organisations responsible**
		3.1.7. Study and periodically assess the scale of egg collection and legal and illegal hunting in Russia. Applicable to: RU	Medium	Medium / Rolling	State and regional research agencies
		3.1.8. Undertake regular independent assessment of the scale of by-catch in fisheries, including fishing effort, in the marine environment and large freshwater areas throughout the range, and assess the population-level impact of this by-catch. Applicable to: principal range states with wintering, staging and moulting aggregations of VS (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	High	Short / Rolling	State conservation, fisheries and research agencies, NGOs, research institutes
		3.1.9. Develop and initiate research projects that examine the impact of climate change factors on the population status of Velvet Scoter. Applicable to: principal range states with breeding, wintering, staging and moulting aggregations of VS (DE, DK, EE, FI, LV, LT, NO, PL, RU, SE)	Medium	Medium	State research agencies, research institutions

ANNEX 1. BIOLOGICAL ASSESSMENT

Distribution throughout the annual cycle

The breeding area of the Northern Europe biogeographic population of Velvet Scoter reaches eastwards to the Yenisei and Khatanga Rivers and the southern part of the Taimyr Peninsula, stretching west along the Russia Arctic Ocean coast to Scandinavia as far as southern Norway as well as Estonia (see Fig. 1). In Western Europe, Velvet Scoter breeds along the Baltic Sea coast and archipelagos (in Sweden, Finland and Estonia) and in inland highland regions (in Finland, Sweden and Norway). In the eastern part, the breeding range extends southwards from Yamal and Taimyr to north-eastern Kazakhstan. Spring migration towards the breeding grounds of birds wintering in the Baltic Sea takes place in mid-May to early June, while the autumn migration of breeding females and juveniles starts in August and peaks in September and October. Males move to moulting areas much earlier, as soon as females start incubating. Moulting areas are mainly along the northern coasts of Russia, although moulting aggregations have also been observed in the northern Baltic Sea (Anker-Nilssen et al. 2000, Luigujoe & Kuresoo 2000). Smaller moulting aggregations are also known from German and Danish Baltic Sea waters. The main wintering grounds are in the Baltic Sea, primarily along the eastern and south-eastern coasts – in Riga Bay, along the Latvian, Lithuanian, Russian (Kaliningrad) and Polish coasts as well as Pomeranian Bay (Skov et al. 2011). Up to 6,000–8,000 birds winter in Swedish waters in southern Kattegat. Some wintering birds also occur inland, e.g. Switzerland. In some years, cold weather movements occur along the eastern Baltic coast when key wintering sites in the Gulf of Riga are temporarily frozen. During such periods, huge concentrations of Velvet Scoters (up to 3,500 ind./km²) occur in relatively small marine areas in Lithuania and Kaliningrad, meaning they are particularly vulnerable to oil spills and other possible threats at such times. Prior to spring migration, high numbers of Velvet Scoters aggregate in the north-eastern Baltic Sea – Riga Bay and the waters of the West Estonian Archipelago – from where they migrate through the Gulf of Finland, north-east through the White Sea to the Barents and Kara Seas where they spend some time in marine waters before dispersing to inland nesting locations (Skov et al. 2011, unpublished telemetry data).

Habitat requirements

On eastern breeding grounds, Velvet Scoter breeds mainly inland, near freshwater lakes and streams in forested or open tundra. In Fennoscandia and Estonia, the species breeds either on forested or more open islands in the archipelagos of the Baltic Sea or in mountain regions on open montane lakes, usually above the tree line and only occasionally in forested areas (in Norway, Sweden and Finland) (del Hoyo et al. 1992, Anker-Nilssen et al. 2000, Carboneras et al. 2018, L. Nilsson, pers. comm.). Nests are usually well concealed and located close to water (Cramp & Simmons 1977). Diet when breeding at freshwater bodies is thought to comprise mostly insect larvae, *Trichoptera*, and tadpole shrimps in the Arctic, while in coastal marine areas it comprises mostly molluscs (Anker-Nilssen et al. 2000). Outside of the breeding season, Velvet Scoters stay mostly in marine waters and exhibit a high preference for sandy areas where they feed on infaunal and epifaunal species – mainly bivalve molluscs and, to a lesser extent, gastropods, crustaceans, annelids and even fish (Žydelis 2002, Fox 2003). In the Baltic Sea, areas with a depth of 10–30 m are preferred (Skov et al. 2011).

Survival and productivity

There are few data and studies of Velvet Scoter demography. Koskimies (1957) estimated a 72% survival rate for coastal breeding birds in Finland (recalculated in Brown & Houston 1982), whereas survival rates in White-winged Scoter (*Melanitta deglandi*, formerly treated as a subspecies of Velvet Scoter), breeding in Saskatchewan were lower – ca. 64% (Brown &

Houston 1982). However, a more recent study has estimated adult female survival of the White-winged Scoter at 85% (Swoboda 2007). Age at first breeding is 2–3 years; clutch size usually 7–9 eggs; incubation lasts 27–28 days; fledging is at 50–55 days (Cramp & Simmons 1977). Breeding success may be suppressed by density dependence mechanisms at breeding sites (Hartman et al. 2013). Winter weather may influence population dynamics indirectly through reduced condition of breeding birds and directly through increased juvenile mortality in severe winters (Hartman et al. 2013). Weather is also likely to influence reproduction rates on the breeding grounds.

Population size and trend

The wintering population was estimated at 1,000,000 individuals in the early 1990s (Durinck et al. 1994, Delany & Scott 2006). A comprehensive census in 2007–2009 suggested a large decline in the Baltic Sea, where the majority of the population overwinters, by ca. 60% or 3.6% per year (Skov et al. 2011), which led to an updated estimate for the whole Northern Europe population of 450,000–500,000 individuals (Wetlands International 2016) and listing of this species as Endangered (EN) in 2012. Subsequent re-evaluation of newly compiled data by BirdLife International (2015) resulted in down-listing to Vulnerable (VU). Current information on abundance and population trends remain poor due to a lack of sufficiently frequent and comprehensive coordinated mid-winter surveys. A new coordinated Baltic Sea-wide wintering waterbird survey was carried out in January–March 2016, but the results of this survey are still unpublished. The latest estimates are primarily derived from the most recent Article 12 reporting (Table 4). This suggests a winter population of up to 330,000 individuals, however, this does not include data from Russia (Kaliningrad Region) and more recent Danish, German and Lithuanian data that suggest higher wintering numbers there. Information on breeding numbers of the Velvet Scoter is scarce, particularly from Russia, which accounts for the major part of the breeding population. Estonia, Finland (Tiainen et al. 2013, Hario & Rintala 2014), Norway and Sweden in total reported 12,000–25,000 breeding pairs, with mostly decreasing trends (Table 4).

Table 4. Velvet Scoter population size and trend by range state (principal range states in bold). Data for European Union Member States (in italics) are predominantly from EU Birds Directive Article 12 reporting for 2008–2012

Country	Breeding numbers (pairs)	Quality of data	Year(s) of the estimate	Breeding population trend in the last 10 years (or 3 generations)	Quality of data	Non-breeding population (individuals)	Quality of data	Year(s) of the estimate	Short term winter trend (years; quality of data)	Long term winter trend (years; quality of data)
Belgium	–	–	–	–	–	50–250	P(S)	2001–2012	Unknown (2001–12; poor)	Unknown (1980–2012; poor)
Denmark	–	–	–	–	–	600[1]	G(O)	2000–2012	Decline 50-100% (2000–11; good)	Decline 50-100% (1980–2011; good)
Estonia	150–300	M(E)	2008–2012	Decreasing (-50% – -70%)	M(E)	20,000–200,000	P(S)	2008–2012	Stable (2001–12; poor)	Stable (1980–2012; poor)
Finland	3,600–11,800	G(E)	2006–2012	Decreasing (-27% – -57%)	G(E)	100–1,000[2]	–	–	n/a	n/a
France	–	–	–	–	–	115–1,515	M(E)	2000–2012	Fluctuating (2000–12; moderate)	Decline 60–75% (1980–2012; moderate)
Germany	–	–	–	–	–	39,000	G(E)	2001–2005	Fluctuating (2000–12; moderate)	Decline 21–100% (1980–2005; poor)
Latvia	–	–	–	–	–	20,000	M(E)	2000–2012	Stable (2000–12; moderate)	Decline 60% (1992–2008; moderate)
Lithuania	–	–	–	–	–	16,800[3]	G(E)	2001–2012	Decline 20–50% (2001–12; moderate)	Decline 15–40% (1980–2012; moderate)
Netherlands	–	–	–	–	–	5–278	G(O)	2000–2011	Fluctuating (2000–11; moderate)	Fluctuating (1980–2011; poor)
Norway	400–650	M(E)	2013	Probably decreasing	M(E)	20,000–30,000	M(E)	2006	n/a	n/a
Poland[4]	–	–	–	–	–	6,000–12,500	G(E)	2011–2017	Moderate decline (2011–17; good)	Unknown
Russia	60,000–70,000[5]	M	2000–2002	Unknown	P(S)	Densities[6]: up to 14.3–62.5 ind./km²	G(O)	2004–2015	n/a	n/a
Sweden	8,000–12,000	M(E)	2008–2012	Stable	M(E)	2,500–7,000	M(E)	2001–2012	Fluctuating (2001–12; moderate)[7]	Increase 3.3% p.a. (1980–2012; moderate)[7]
UK	–	–	–	–	–	2,500	M(E)	1999–2010	Decline 59% (1999–2010; good)	Increase 223% (1980–2010; good)

[1]– in 2013, 6,804 birds were actually observed during aerial surveys, possibly representing more than 70,000 birds (I. K. Petersen, pers. comm.);
[2]– 100–1,000 birds were estimated based on data from four census routes in Åland Islands only (not included in Article 12 reporting); source: J. Tiainen, A. Below, M. Mikkola-Roos, Velvet Scoter workshop presentation;
[3]– more recent studies suggest up to 30,000 wintering birds;
[4]– data for Poland have been updated after Article 12 reporting; source: Monitoring of Birds of Poland (http://monitoringptakow.gios.gov.pl/database)
[5]– data from European Red List of Birds (BirdLife International 2015);
[6] – no total numbers available;
[7]– based upon a recent re-analysis of Swedish count data (F. Haas, pers. comm.).

Quality of data:
Good (Observed) [G(O)] = based on reliable or representative quantitative data derived from complete counts or comprehensive measurements.
Good (Estimated) [G(E)] = based on reliable or representative quantitative data derived from sampling or interpolation.
Medium (Estimated) [M(E)] = based on incomplete quantitative data derived from sampling or interpolation.
Medium (Inferred) [M(I)] = based on incomplete or poor quantitative data derived from indirect evidence.
Poor (Suspected) [P(S)] = based on no quantitative data, but guesses derived from circumstantial evidence.

ANNEX 2. PROBLEM ANALYSIS

General overview

The assessment of problems underlying the current status of the Northern Europe population of Velvet Scoter and the identification of threats and limiting factors for the species was based on information provided by species experts in questionnaires for the development of the Species Status Report, and in presentations, opinions and discussions by national experts and national representatives during the Species Action Planning Workshop[11] as well as information available in published literature. The decline in abundance of this population of Velvet Scoter is likely to have been brought about by a combination of reduced survival and reduced reproductive output, although information on the exact contribution of these factors to the observed decline is lacking. Therefore, it is currently difficult to accurately prioritise the actions necessary to reverse the declining trend. The following root causes, contributing to increased mortality, directly or indirectly, have been identified: by-catch of wintering birds in fishing gear, accidental and diffused oil pollution, hunting, predation by non-native species, effects of windfarms and other developments. However, it must be noted that these factors have not changed dramatically over the last decades and thus are unlikely to be solely responsible for the observed decline in the Velvet Scoter population since the 1990s. While very little is known about factors affecting Velvet Scoter reproductive output, disturbance of birds during the breeding season has been identified as a potential threat to birds breeding in the Baltic archipelagos. Key threats/limiting factors are summarised below.

Oil pollution

Marine oil pollution resulting from deliberate illegal discharges or unintentional releases of oil-based products, including releases relating to coastal, shipping or oil installation accidents, poses a serious threat to wintering Velvet Scoters that aggregate in high numbers and relatively high densities in marine areas that also support intensive ship traffic and offshore oil-related activities. Small-scale illegal operational oil spills are of particular concern due to their widespread nature. As with other species of waterbirds that spend most of their time on the sea surface and feed by diving, Velvet Scoters are particularly vulnerable to oil on the sea surface. Oiled birds may suffer various consequences, depending on the degree and nature of oiling, from direct mortality through (i) drowning, (ii) hypothermia caused by disruption of the insulating layer of feathers or (iii) poisoning through the ingestion of oil while preening feathers, to various indirect or sub-lethal effects, ranging from (iv) a decrease in body condition and reduced survival to (v) behavioural effects and (vi) changes in breeding success.

By-catch in fishing gear

Wintering Velvet Scoters aggregate in large numbers in shallow marine waters that are also often extensively used by coastal gill net fisheries (e.g. Sonntag et al. 2012, Bellebaum et al. 2013). Being benthivorous, Velvet Scoters feed by diving to the sea bottom, which greatly increases their chances of encountering, and becoming entangled in, gill nets set at a wide range of depths. Whilst somewhat less susceptible to getting entangled in set gillnets than fish-eating pursuit divers (e.g. divers, grebes, alcids), Velvet Scoter ranks among the most common victims of fisheries by-catch in the Baltic Sea (Dagys & Žydelis 2002, Žydelis et al. 2009, https://seabirdbycatch.com). A variety of fishing gear that poses a threat to diving birds is widely used in the wintering areas of Velvet Scoter, including gillnets, trammel nets and other entangling gears. The importance of this threat to marine birds is now widely recognised and the declines of some marine bird populations have been at least partly attributed to it (Žydelis

[11] Held in Vilnius, October 2016

et al. 2009, 2013, Fox et al. 2015). The effect of this threat varies between sites and the fishing techniques and gear types used in the fishery (Dagys & Žydelis 2002, Žydelis et al. 2009, Shester & Micheli 2011). Development of mitigation measures for reducing by-catch of seaducks in gillnets is underway, using a variety of methods tailored to take account of variation in species specific senses (e.g. eyesight), but in most cases is yet to yield conclusive results and measures ready for implementation on a wide scale (Martin & Crawford 2015, Wiedenfeld et al. 2015). Another effective measure in reducing bird by-catch is switching to alternative fishing gears and methods (e.g. various fish traps) that produce less or no by-catch of marine birds.

EU regulation of fisheries may have an indirect effect on wintering Velvet Scoters, especially through the management of and regulation against incidental catches in gillnets. The EU Plan of Action for reducing incidental catches of seabirds in fishing gears[12] lists several actions which the European Commission, the EU Member States, regional fisheries management organisations, and other bodies, are tasked to implement in order to mitigate incidental catches of seabirds. Actions include implementation of the EU Common Fisheries Policy (CFP), adopted in 2013, which sets out the objectives and tools for managing EU fisheries, including minimising the impact of EU fisheries to the wider environment. In order to achieve these objectives, the European Commission has taken the following steps:

- Proposed in July 2015 to revise the Data Collection Framework Regulation in order to align it with the objectives of the CFP. This includes having data collected and reported on the ecosystem impacts of the fisheries (e.g. data on levels of seabird incidental catches, even though this would require significant additional resources).
- In March 2016, the European Commission also proposed a new legislation on technical conservation measures in an effort to set default actions in each region to tackle the impact of the fisheries to the wider ecosystem including minimising and, where possible, eliminating incidental catches of seabirds.
- In August 2016, the EU adopted a regional multiannual plan to manage the fisheries exploiting cod, herring and sprat in the Baltic Sea. Through this multiannual plan, these fisheries are expected to adopt measures to minimise the impact of the fisheries to the wider environment, including the incidental catches of seabirds. Hence, the CFP has direct implications for the management and reduction of by-catch of Velvet Scoters and other seabird species.

In 2008, the EU adopted a Marine Strategy Framework Directive (MSFD) with the aim to achieve good environmental status (GES) of the seas by 2020. Seabirds are a component of one of the 11 descriptors (Biodiversity descriptor) that indicate whether the EU has achieved GES. The revised Commission Decision (2017) identifies a new Primary criterion: D1C1 – The mortality rate per species from incidental by-catch is below levels which threaten the species, such that its long-term viability is ensured. All Member States have to adopt monitoring programmes and programmes of measures in order to achieve GES, including for seabirds. For example, the UK Marine Strategy Part One contains a Proposed Indicator – Mortality of seabirds from fishing (bycatch) and aquaculture.

In 2014, the Maritime Spatial Planning Directive was adopted in which all EU Member States are required to deliver a national maritime spatial plan by 2021 which will apply an ecosystem-based approach. Hence, it is expected that all marine protected areas and their management are accounted for within these plans, as well as all fishing activities. The MSP Directive can

[12] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52012DC0665

therefore, also have direct implications for the management and reduction of the by-catch impact on Velvet Scoters and other seabird species.

Hunting

Velvet Scoter is listed in Annex II Part B of the EU Birds Directive as a potentially huntable species in eight EU member states (Denmark, Germany, France, Ireland, Latvia, Finland, Sweden, and United Kingdom). However, as of September 2016, when Latvia removed Velvet Scoter from the list of huntable species, Denmark remains the only EU member state with an open season for Velvet Scoter (1 October – 31 January) and substantial hunting bag of ~3,000 birds per year. From 2018, hunting in Denmark will be limited to males only, which is expected to reduce both the total hunting bag and population impacts. Hunting of Velvet Scoters is also allowed in France, but the numbers hunted are negligible (up to 41 birds per year; Girard & Trolliet 2014, National Hunting Bag Survey 2013–2014). In Germany, decisions regarding huntable species are made by individual regions (Länder) and in all except Bremen there is no open season for Velvet Scoter. Further, hunting is also only permitted in designated hunting districts (Jagdbezirken) and these do not contain urban areas. As Bremen is densely settled it seems that there are no appropriate or important districts there for the hunting of Velvet Scoter. Outside the EU, Russia is the only range state with an open season for Velvet Scoter hunting (spring season – 10 calendar days between 1 March and 16 June, and autumn season – from the second Saturday of August to 15 November). There is little detailed information on the hunting bag size of Velvet Scoter in Russia, but some expert estimates suggest ca. 4,500 birds hunted annually (P. Glazov, workshop presentation), while the total hunting bag for ducks is over 2 million birds per year in the European part of Russia and Western Siberia. Whilst this suggests relatively few Velvet Scoters are hunted, representing just over 1.5% of the current population estimate, the sustainability of such hunting needs to be assessed and further knowledge needs to be collected on the extent of hunting in Russia in order to adaptively manage any future harvest, following best practice as set out in Madsen et al. (2015).

Predation

Mortality from predation may be another important factor decreasing the survival rate of Velvet Scoter. Velvet Scoters are predated upon by a number of natural predators, particularly during the breeding season when incubating females are taken from nests, but the abundance of some predators has increased rapidly in recent years. Of particular importance are two non-native mammals – American Mink (*Neovison vison*) and Raccoon Dog (*Nyctereutes procyonoides*)– which are causing high mortality on breeding grounds in the Baltic Sea region (Nordström *et al*. 2003). In addition, White-tailed Eagle (*Haliaeetus albicilla*) has increased dramatically in the Baltic Sea over the last few decades and they are known to have a significant impact on other seaduck, particularly Common Eider (*Somateria mollissima*) (Ekroos *et al*. 2012). Predation of females on breeding grounds may further exacerbate the negative effect of predation through reduced productivity. Often the effect of predation on breeding grounds by some predators, e.g. gulls, is augmented by recreational disturbance of breeding birds and ducklings as disturbed birds, their clutches and young become easier prey for both mammalian and avian predators.

Construction of windfarms and other marine infrastructure developments

Increasing demand for renewable energy has resulted in a dramatic increase in the construction of wind turbines. While most of this has so far been concentrated on land, and only a few wind farms are currently operational in the Baltic Sea (mostly in the south-western part), the number of planned major marine wind power installations has been increasing in the Baltic Sea, including in areas adjacent to important wintering aggregations of Velvet Scoter.

Windfarms may have a number of impacts on Velvet Scoters, ranging from direct mortality from collisions to several indirect effects. Collision risk is considered to be low for seaducks but studies of Long-tailed Duck (Petersen et al. 2006) have shown that birds are displaced by the presence of turbines from favoured feeding grounds. The long-term population effect of this is currently unknown but displacement to less favoured habitat is likely to have at least some indirect effect on body condition and subsequent survival rates and/or productivity.

Large wind farms in migration corridors might also cause an avoidance/barrier effect to migrating birds, causing them to change flight routes thus wasting energy at a critical period of the annual cycle, which, in turn, may result in reduced survival and/or breeding success.

Of critical importance as the number of possible offshore wind farms increases is the need to consider their collective, or cumulative, impact. Assessment of the cumulative impact of all offshore wind farms (and other marine developments, e.g. shipping lanes, see below) across the entire non-breeding range (including migration routes) of Velvet Scoter is urgently needed in order to evaluate the net loss of wintering habitat through displacement or other effects. The potential impact of wind farms on marine waterbirds, and Velvet Scoters in particular, should be adequately addressed in National Strategic Environmental Assessments (SEA) and Environmental Impact Assessments (EIA) for all plans for the development of offshore wind farms.

Disturbance

Disturbance in Baltic Sea breeding areas (e.g. by boats) is known to increase the mortality of ducklings thus reducing the reproductive output of Velvet Scoters (Mikola et al. 1994). The impact of this appears to have increased in recent years, in areas such as Estonia and the archipelagos in Sweden, as a result of increasing levels of boat traffic. This is exacerbated by the late breeding season of Velvet Scoter which means that birds are usually still actively rearing young after the seasonal restrictions on marine recreational activities that are designed to protect breeding birds have ended. For example, in Finland, restrictions for landing in protected breeding areas in the archipelagos and islets apply only until 31 July, which is too early for such a late breeding species which may still have vulnerable young as late as late August. Disturbance of birds by windsurfers, military exercises or hunting of other birds may also be an issue in some areas.

On wintering grounds Velvet Scoters may be locally disturbed by artisan fishing boats involved in gillnet fisheries and by recreational activities (e.g. kite surfing), but such disturbance is usually very limited and local. However, in Germany Velvet Scoters are mainly found in the EEZ of the Pomeranian Bay, where they may be affected by disturbance from shipping traffic. In this area increased traffic is expected to the ports of Szczecin and Świnoujście (Poland) as a result of deepening the shipping routes in the Pomeranian Bay and Świnoujście. Large scale avoidance of shipping lanes has also been observed in Lithuania (Žydelis 2002).

Climate change

Among threats of a more global nature, climate change is thought to have the potential to affect waterbird populations in a variety of ways and through a number of different mechanisms, some of which may have negative outcomes, while others may have positive outcomes for the species in question (summarised in Fox et al. 2015). Climate change is known to affect migration timing as well as migration distances in some species, which, consequently, may result in changes of seasonal distribution (e.g. wintering sites). However, such effects are not uniform – they may differ among species with different ecological requirements and across regions. Change in climatic conditions may also affect survival of waterbirds both in positive (e.g. due to milder winter conditions) and negative (e.g. more frequent extreme weather events) ways. Climate-induced phenological shifts may also result in a mismatch between food availability and its period of highest demand (e.g. during chick rearing) thus impacting reproductive output. There may also be more complex interactions between climate change, waterbird habitats and food availability both in wintering and breeding areas (for more detail see Fox et al. 2015 and references therein). For example, increase in winter water temperature and more frequent mild winters have been shown to negatively affect the quality of blue mussels – main food of some diving ducks in winter in the Baltic Sea (Waldeck & Larsson 2013). If also applicable to other bivalves, this may have an effect on wintering Velvet Scoters as well. Climate change may also affect food webs on breeding grounds through climate-driven changes in phytoplankton, invertebrate and vertebrate prey communities. However, very little information is currently available on climate change effects on Velvet Scoter, so the exact ways in which climate change might affect this species are currently mostly unknown. In this respect, regular internationally coordinated surveys of wintering Velvet Scoters as well as other waterbirds, covering as wide geographical areas as possible are of particular importance, as such surveys would allow not only to reliably map the distribution of wintering birds, estimate their numbers and trends, but also to detect possible range shifts brought about by the effects of climate change. Furthermore, monitoring at breeding areas, particularly more northern ones, would be very beneficial for understanding the impact of climate change on breeding performance and population dynamics of the species.

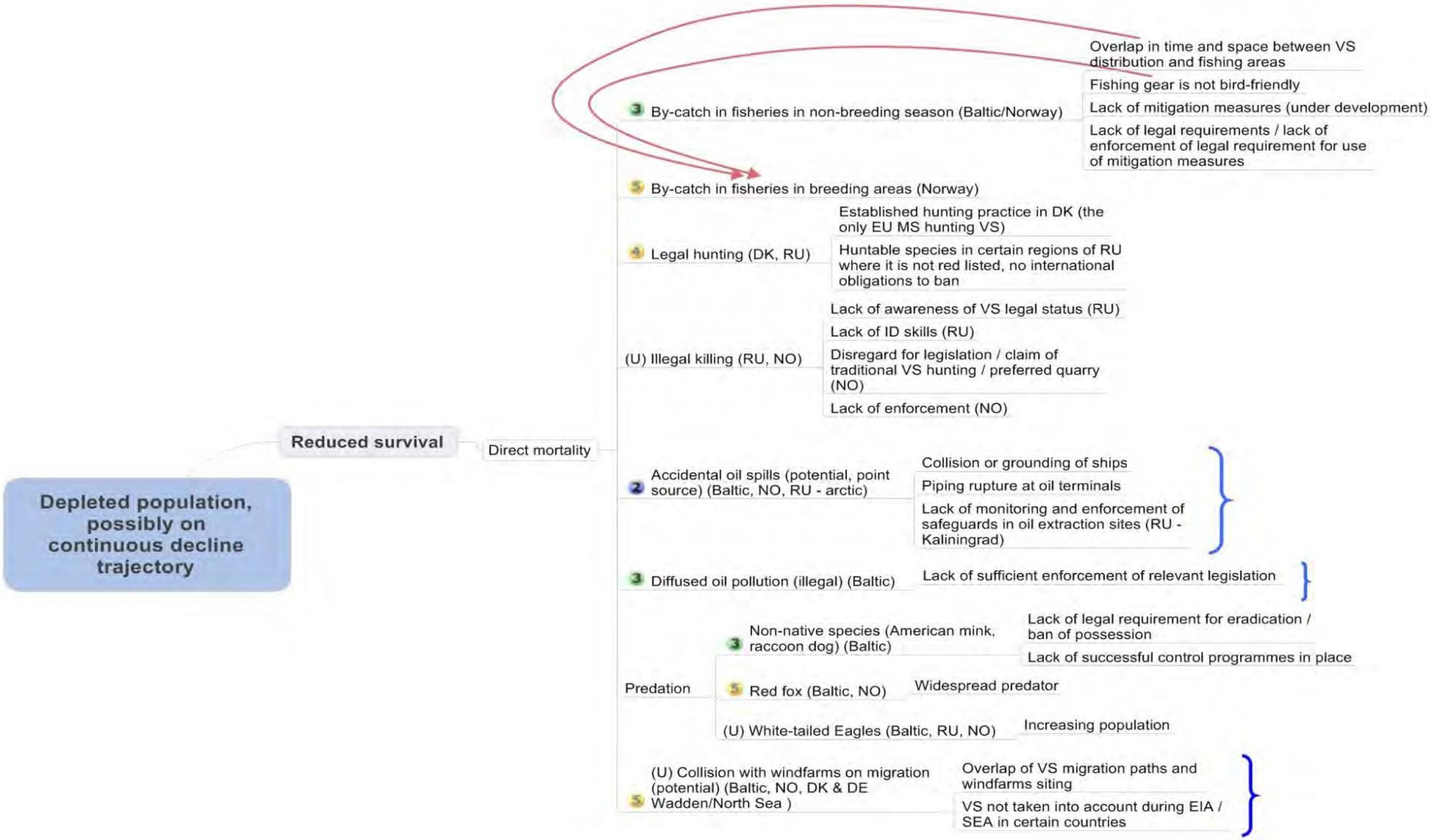

Figure 2. Problem tree (threat level: 1 – critical, 2 – high, 3 – medium, 4 – low, 5 – local, U – unknown)

Figure 2 (continued). Problem tree (threat level: 1 – critical, 2 – high, 3 – medium, 4 – low, 5 – local, U – unknown)

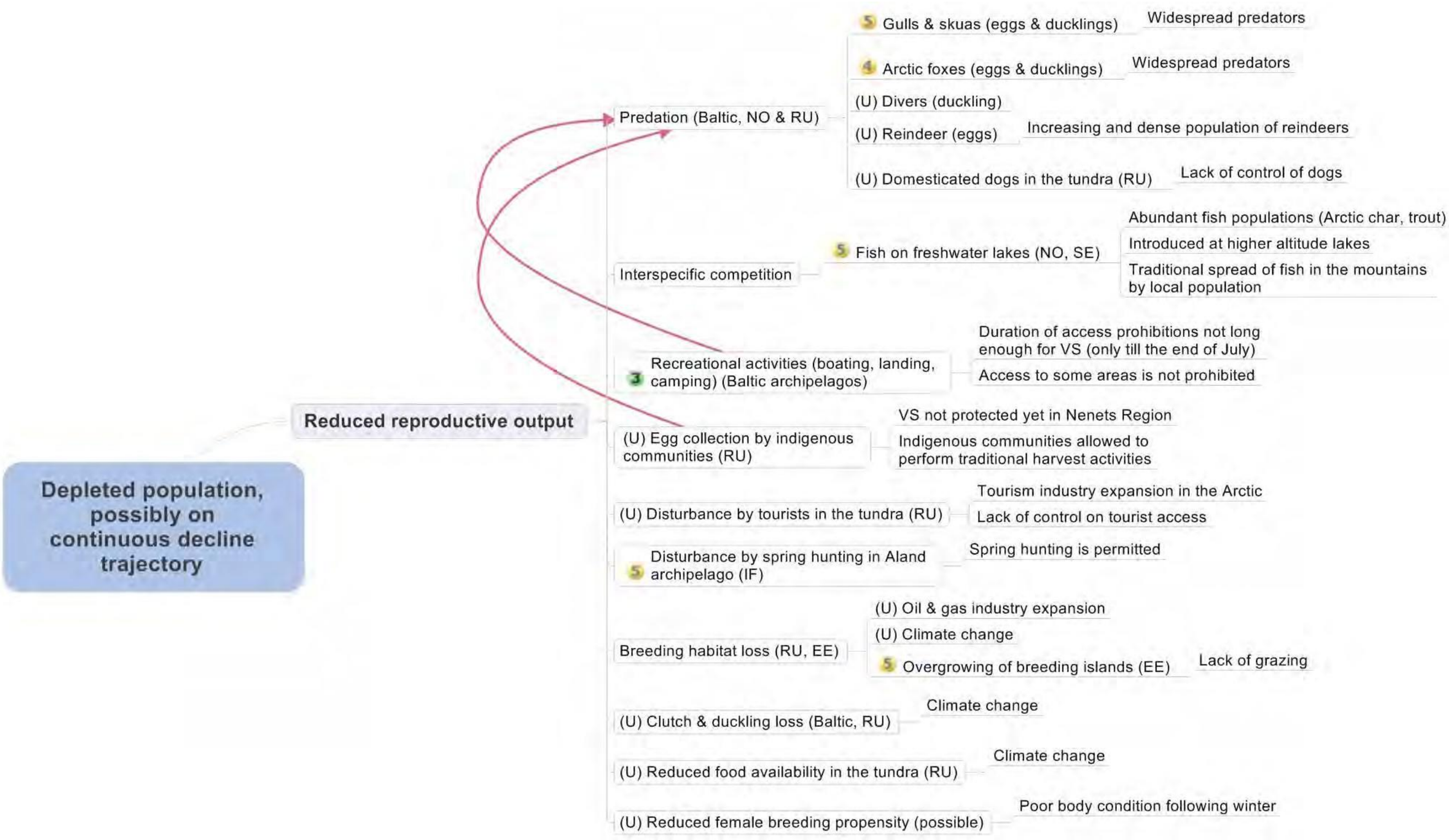

Figure 2 (continued). Problem tree (threat level: 1 – critical, 2 – high, 3 – medium, 4 – low, 5 – local, U – unknown)

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