

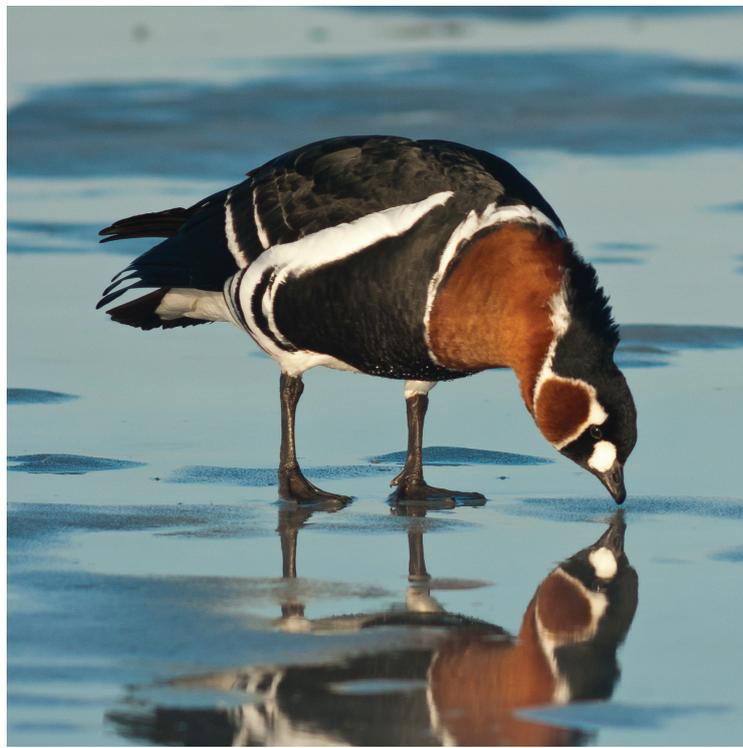
TECHNICAL SERIES

No. 46



International Single Species Action Plan for the Conservation of the Red-breasted Goose

Branta ruficollis



This Single Species Action Plan has been prepared to assist the fulfilment of obligations under the:

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

and

**Council Directives 92/43/EEC (Habitats Directive) and
79/409/EEC (Birds Directive)**

**International Single Species Action Plan for the
Conservation of the Red-breasted Goose**

Branta ruficollis

AEWA Technical Series No. 46

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AEWA Red-breasted Goose International Working Group¹

The AEWA Red-breasted Goose International Working Group is an inter-governmental group that coordinates the implementation of the Single Species Action Plan for this globally threatened species.

Milestones in production of this plan:²

Much of the information contained in this action plan was compiled during two action planning workshops; in Constanta, Romania, during 26–28 February 2008 and in Moscow, Russia, during 22–25 February 2009. A review of implementation of the first international action plan was undertaken between August and October 2009.

31 January 2010	First draft submitted to the European Commission
31 March 2010	Final draft submitted to the European Commission Final draft approved by the Ornis Committee
September 2011	Final draft approved by the AEWA Technical Committee at its 10 th Meeting in Naivasha, Kenya
November 2011	Final draft approved by the AEWA Standing Committee at its 7 th Meeting in Bergen, Norway
May 2012	Final draft approved by the 5 th Session of the Meeting of the Parties to AEWA, 14-18 May 2012, La Rochelle, France

Revisions

This plan should be reviewed and updated every ten years (next revision in 2020). An emergency review will be undertaken if there is a significant change to the species' status before the next scheduled review.

Recommended citation

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Photo on the cover: Red-breasted Goose (*Branta ruficollis*) © Chavdar Nikolov

¹ Please send any information or comments for inclusion in the revision of this plan to the coordinator of the AEWA RbGIWG. Contact details can be found at: www.redbreastedgoose.aewa.info

² Note about data used in this plan - The data used to compile this plan (for example, to determine the global trend and the average numbers in each range state) were from the period up to and including 2009. Similarly, the lists of designated sites are derived from information held in databases in late 2009. Surveys have been made since that time (for example, in Kazakhstan in 2010) and numbers and site status will have changed in some cases. Consequently, any assessment of current status should use the most recent data, obtained from the AEWA Red-breasted Goose International Working Group or relevant contacts in the respective range states.

Geographical scope

This plan is to be implemented in the following countries:

Bulgaria, Kazakhstan, Romania, The Russian Federation, Ukraine, the key regions/districts of The Russian Federation in which the plan is to be implemented are: Kalmykia, Khanty-Mansi, Kurgan, Orenburg, Rostov, Stavropol, Taimyr, Tyumen, Volgograd and Yamalia.



Figure 1: Countries in which the plan is to be implemented

The primary range states are shaded dark grey; countries identified by striped shading are encouraged to develop national plans for the Red-breasted Goose.

The Red-breasted Goose occurs in small numbers in other countries, notably Azerbaijan, Greece, Hungary and Turkey. Although there is currently no requirement for this plan to be adopted in these countries, they are encouraged to develop national plans for the species based on the framework of this international plan. The status of the Red-breasted Goose should be kept under review, and relevant actions in this plan should be implemented in those countries if they are likely to make a significant contribution to the conservation of the species.

A number of other countries – notably, Republic of Moldova and Uzbekistan and perhaps also Iran and Iraq – may also support Red-breasted Geese on a regular basis, but information is currently lacking. Aspects of this plan might also be implemented in those countries once the species' status there is clarified.

Disclaimer

The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of UNEP/AEWA concerning the legal status of any State, territory, city or area, or of its authorities, or concerning the delimitation of their frontiers and boundaries.

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Preface

In 2008 the European Commission decided to revise the EU Species Action Plan for the Red-breasted Goose (*Branta ruficollis*), originally adopted in 1996. In order to produce one common action plan covering the entire flyway of the species, it was agreed to coordinate this revision with the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA); this International Single Species Action Plan for the Conservation of the Red-breasted Goose was commissioned to BirdLife International in 2008. The final draft was approved by the European Commission Ornithology Committee in 2010 and subsequently presented to the AEWA Technical and Standing Committees in 2011 and approved by the 5th Session of the Meeting of the Parties to AEWA in May 2012.

Executive Summary

The Red-breasted Goose is a globally threatened species. It is classified as Endangered on the IUCN Red List. The species suffered a large and rapid decline in population size following 2000, and is now highly concentrated at a relatively low number of sites, increasing its vulnerability to threats. It is assigned a high level of protection under international environmental agreements and legislations.

The Red-breasted Goose breeds in Arctic Russia and migrates in winter around the northern and western coasts of the Black Sea. It occurs almost entirely in five countries – Bulgaria, Kazakhstan, Romania, the Russian Federation and Ukraine – which therefore have a special responsibility for the conservation of the species.

This plan identifies the key actions required to improve the conservation status of the Red-breasted Goose. Experts from all range states identified the most important threats to the species, and have determined a series of actions to remove the threats or mitigate their effects.

The aim of the plan is to remove the Red-breasted Goose from the IUCN Red List. The **objective** is to down-list the IUCN Red-list status of Red-breasted Goose from Endangered to Vulnerable within the ten-year lifetime of the plan. To meet this objective, the plan sets out a series of results to be achieved by 2020:

- Result 1:** Sufficient feeding opportunity available in staging and wintering areas.
- Result 2:** Impact of development in the wintering and staging areas minimised through strategic planning.
- Result 3:** Detrimental development in breeding grounds minimised.
- Result 4:** Risk of poisoning by rodenticides significantly reduced.
- Result 5:** Direct and indirect mortality from hunting significantly reduced.
- Result 6:** A site network of protected areas functioning effectively.
- Result 7:** The species' status and the effect of action plan implementation, assessed by monitoring numbers and demography.
- Result 8:** The severity of the threat from lead poisoning evaluated.

A series of actions are identified to deliver each of the results. Climate change is predicted to have a number of direct effects and also to exacerbate other threats. Whilst tackling climate change is beyond the scope of this action plan, issues for the Red-breasted Goose are highlighted so that appropriate mitigation or adaptive management can be considered when implementing actions.

Relevant authorities and statutory bodies, and a range of key stakeholders, are encouraged to work collaboratively to implement the actions. International cooperation and coordination will be essential. Progress towards both delivery of the actions and achievement of the results should be reviewed on a regular basis. Barriers to implementation should be identified and overcome to ensure that the objective of the plan is met.

1. Plan Purpose and Term

1.1 Purpose of this Action plan

This plan specifies a series of actions to improve the conservation status of the Red-breasted Goose. Experts from all range states, through a series of workshops and consultations, have identified the most important threats to the species and determined a series of actions to remove these threats or mitigate their effects. This approach enables unpublished data and expert opinion to be included in the development of the plan while retaining high scientific rigour.

Relevant actions should be implemented in each range state. Countries are encouraged to develop national work plans for the Red-breasted Goose, or to transpose these actions into existing plans and legislation.

Implementation will require the collaborative efforts of national and regional authorities and competent statutory bodies, and a range of key stakeholders. Principal among these are national and international non-governmental conservation organisations, farming associations, hunting, game management and fishing organisations, site management committees, and academics.

International cooperation and coordination will be essential for implementation. This should be facilitated, in the most part, through the AEWA Red-breasted Goose International Working Group.

It is expected that the actions identified in this plan will receive priority consideration for funding through relevant international and national instruments.

The conservation of the Red-breasted Goose is dependent on the successful implementation of this plan. Progress towards both delivery of the actions and achievement of the results should be reviewed on a regular basis. Barriers to implementation should be identified and overcome to ensure the objective of the plan is met.

1.2 Plan term

This plan covers the period 2010 to 2020.

2. Biological Assessment

Monitoring and research on Red-breasted Geese have been undertaken along much of the flyway. Compared with many other geese occurring in the Western Palearctic, this species is, however, relatively little-studied. The combination of remote breeding and staging areas, and the species' use of extensive open feeding areas in winter, makes field observations difficult. In many range states, there are relatively few academic or volunteer ornithologists studying or monitoring the species, and consequently demographic data in particular, are often incomplete or lacking. Much of the information collected has been published only in Russian, and is therefore not generally accessible by non-Russian speakers. In many cases, there is relatively little hard evidence with which to determine to what extent some of the putative threats are actually a problem. As a consequence, whilst there is a reasonable qualitative understanding of conservation status, distribution, trends and threats, the lack of data makes it difficult to recommend specific solutions for some of the conservation problems.

2.1 Taxonomy and biogeographic populations

Phylum: *Chordata*

Class: *Aves*

Order: *Anseriformes*

Family: *Anatidae*

Tribe: *Anserini*

Species: *Branta ruficollis* (Pallas, 1769)

Synonym: sometimes also known as *Rufibrenta ruficollis* in former Soviet states

Common names

English: Red-breasted Goose

Azerbaijani: Qırmızıdöş qaz

Bulgarian: Червеногуша гъска

Greek: Κοκκινόχηνα

Hungarian: Vörösnyakú lúd

Kazakh: Қызылжемсаулы қаршақаз

Romanian: Gâsca cu gât roșu

Russian: Краснозобая казарка

Turkish: Sibirya kazı

Ukrainian: Червоновола казарка

The Red-breasted Goose is monotypic, and there is just one biogeographic population. This Action Plan covers the entire world population.

2.2 Distribution throughout the annual cycle

The Red-breasted Goose is a long-distance migrant. It breeds in Arctic Russia, primarily on the Taimyr and adjacent peninsulas. It migrates south through Russia to Kazakhstan, and then west through southern Russia to the north and west Black Sea coasts. The majority of the population currently winters in Bulgaria, Romania and Ukraine. The same migration route is followed, in reverse, in spring (figure 2). The winter distribution was markedly different in the past: until the late 1960s, much of the population occurred along the western coast of the Caspian Sea, mainly in Azerbaijan, and in Iran and Iraq.

Although most of the species' range is well known, there are considered to be gaps in knowledge of the precise distribution. These gaps include the extent of the breeding range, the sites used during migration

(particularly in spring) and the distribution during winter (particularly during mild condition) when it is thought that significant numbers may occur away from the Black Sea coast.

The species breeds in the Arctic tundra of Russia, between 67°N and 76°N, and between 67°E and 116°E. The majority of the population nests on three peninsulas to the east of the Ural Mountains: the Taimyr, Yamal and Gydan peninsulas. The Taimyr is believed to support approximately 70% of the population. A very small number of birds may nest west of the Ural Mountains. There is evidence of recent expansion both northwards, e.g. to the Pyasina delta, and eastwards, into Yakutia. It is, however, possible that the expansion may, in part, reflect poor documentation of sites used in the past.

Migration is believed to follow a relatively narrow route. Four main staging areas are known, though each is relatively large, and birds use many individual sites within each of the areas. There may be other, currently unrecorded, staging sites and some ringing recoveries suggest some birds migrate west of the Urals. Knowledge of the migration route, particularly in Siberia, should therefore be considered incomplete.

Autumn migration from the breeding grounds is initially southwards along a narrow corridor, only 100–150 km wide, following the River Ob. The first staging area is in the lower reaches of the Ob floodplains, close to the Arctic Circle, in the Yamal-Nenets region. Further south, there is a key staging area on the middle Ob, between Surgut and the River Vakh, in the Khanty-Mansi region. It is thought that birds also use sites along other parts of the Ob valley and it is likely that some migration sites in Siberia are still unknown. The next main staging area is in northern Kazakhstan, around the Tobol-Ishim forest-steppe and the watersheds of the Ubagan, Ulkayak and Irgizin rivers. The key sites here are centred on the Kostanai region of Kazakhstan, but also in the North Kazakhstan region, and in the adjacent Tyumen, Kurgan and Orenburg regions of Russia. Having reached the southern end of the Urals, migration heads west, passing just north of the Caspian Sea to the fourth major staging area of the Kuma-Manych depression, in the Rostov, Stavropol and Kalmykia regions of Russia.

The population continues west to winter in the Black Sea area. The main winter range lies along the Black Sea coast of western Ukraine, Romania and Bulgaria, particularly in the Dobrudzha region spanning northeast Bulgaria and eastern Romania, and in the coastal area between the rivers Danube and Dniester in Ukraine. The population is highly concentrated at a few locations, and 90% of birds may occur at just five sites. Although most birds are found in areas close to the Black Sea coast, small numbers have been observed over 100 km inland in recent winters, particularly in Romania.

The numbers observed at some sites during spring migration may be quite different to those seen in autumn, and this has led to the suggestion that additional, as yet unknown, sites may be used during spring.

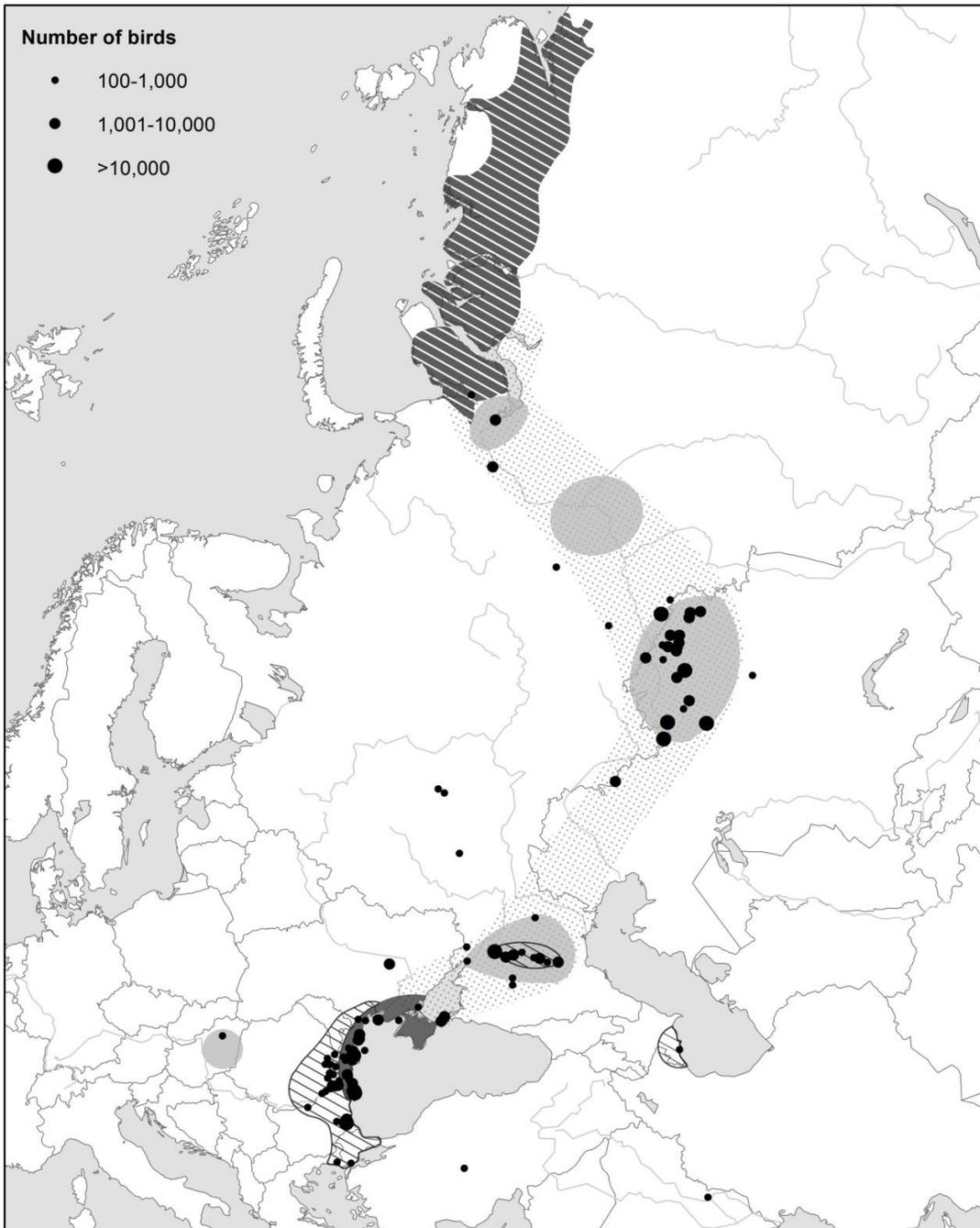


Figure 2: Range of Red-breasted Goose (*Branta ruficollis*)

Broad stripes indicate the breeding area, light grey indicates major staging areas, and dark grey indicates wintering areas (narrow stripes indicate wintering areas used regularly by large numbers; areas with striped shading are used infrequently or by small numbers). Stippling indicates the presumed migratory route for the majority of the population. The boundary of the staging areas and migratory route in particular are approximate. Circles indicate maximum counts at key sites.

Distribution varies between and within winters according to the severity of the weather, with birds generally occurring further south and west during more severe conditions. In very harsh weather, small numbers may winter on the Aegean shore of Greece and Turkey, while during mild conditions significant numbers may remain in the Manych valley and the bay of Syvash for much of the winter.

A few hundred birds continue to winter in Azerbaijan on the western shore of the Caspian Sea (and perhaps inland), and are also regularly recorded on passage in Hungary, particularly at the Hortobágy. It has been speculated that there are unknown staging or wintering sites elsewhere around the Caspian Sea, in Iran, Iraq, Turkmenistan, or Uzbekistan, or elsewhere in central Asia and the Middle East, but there is no firm evidence for this at present. Individual birds are frequently seen in many countries in Northwest Europe, but these are vagrant birds outside the species' normal range.

Post-breeding migration begins in mid September. Peak counts in the Tobol-Ishim staging area are generally between the last week of September and the middle of October. Large numbers are found in the Manych valley in mid November, though they possibly arrive earlier than this. The first birds typically reach Bulgaria and Romania in early November, and numbers increase during the following month (figure 3). Birds begin to move east from Bulgaria and Romania in the second half of February, and the last birds generally depart in the second half of March. Spring numbers in the Manych valley are highest in mid to late March. They reach the Tobol-Ishim area in early May, and arrive on the breeding grounds in early June. Clutches are laid in the second half of June, and moult, which takes place fairly close to the breeding areas, is from mid July to late August.

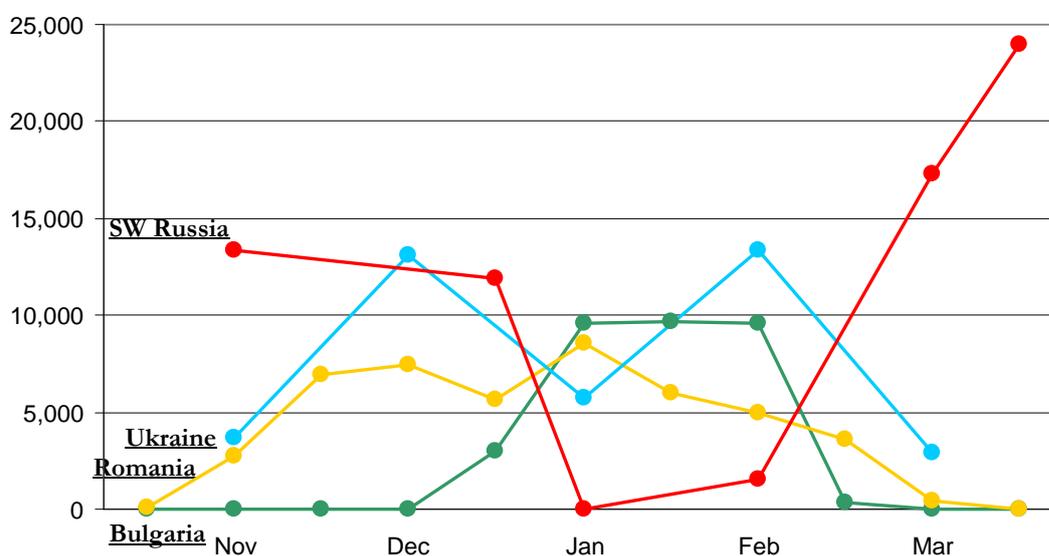


Figure 3: Mean numbers of Red-breasted Geese (*Branta ruficollis*) wintering in southwest Russia, Ukraine, Romania, and Bulgaria, 2005/06 to 2008/09.

2.3 Habitat requirements

Red-breasted Geese nest in the subarctic tundra, usually in close proximity to rivers, and sometimes in open areas of northern scrub tundra. Nest sites are in relatively dry, elevated locations, such as steep river banks, rocky slopes and cliffs. Breeding pairs usually form small colonies in close proximity to avian predators, particularly Snowy Owl *Nyctea scandiaca*, Peregrine Falcon *Falco peregrinus* and Rough-legged Buzzard *Buteo lagopus*. Breeding colonies are also situated close to gull and tern colonies, which reduces the risk of predation by mammals, notably Arctic Fox *Alopex lagopus*. Nests are usually relatively close to water, which provides refuge for young goslings.

Outside the breeding season, Red-breasted Geese occur in a variety of open landscapes, predominantly in agricultural areas, but also in steppe and, particularly in the past, in coastal habitats. They favour areas with a combination of open water for roosting and drinking, and large open areas with grassy vegetation or stubble fields for feeding. During passage and winter periods, they roost on lakes, lagoons and occasionally on the sea in coastal bays. The species feeds on a variety of widespread and commonly occurring grasses,

sedges and crop types, and is not known to have specialist requirements. In winter, Red-breasted Geese predominantly forage in agricultural landscapes, particularly arable crops and stubble, and some grasslands. As with many geese species, there is evidence that this species formerly fed on natural grassland and saltmarsh before adapting to agricultural habitats.

At breeding sites, Red-breasted Geese feed mainly on grass (especially *Eriophorum* spp) and sedge (*Carex*) leaves, shoots and rhizomes, as well as *Fabaceae* and *Poaceae*.

There is a higher diversity in diet during autumn. In the Tobol-Ishim area on migration, the species feeds largely on spilt grain in stubbles, and in Manych they feed on stubbles and unimproved steppe pasture, with a preference for *Puccinellia* and *Aeroplus*. In Bulgaria, Romania and Ukraine the winter diet comprises mainly leaves of winter wheat, barley and maize with some pasture grasses, oil-seed rape and spilt grain from stubbles. At former wintering sites in Azerbaijan, Red-breasted Geese fed primarily on *Salicornia* in saltmarsh and steppe.

During the non-breeding season, Red-breasted Geese typically associate closely with *Anser* geese, regularly forming mixed flocks. In particular, associations are formed with Greater White-fronted Geese *Anser albifrons* and Lesser White-fronted Geese *Anser erythropus*, both when roosting and feeding.

2.4 Survival and productivity

No data are available on adult survival or generation length.

On average, around a quarter of the population (reaching up to 54%) breed in any one year (based on data from 1977–83). Clutches contain between three and ten eggs, most commonly five or six. Breeding success fluctuates, depending mainly on weather, predation levels, nesting patterns of raptors, and on the birds' condition on arrival in the breeding area. Like other Arctic-nesting waterbirds, breeding success in Red-breasted Geese varies between good, variable and poor on a three- or four-year cycle, linked to fluctuations in numbers of lemmings (*Lemmus* spp, *Dicrostonyx* spp) and their predators. The proportion of young observed in the wintering areas (from assessments made over seven years between 1996 and 2008, mainly in Bulgaria) has been found to vary between 6% and 45%, with a mean of 22%.

It has been suggested that the apparent increase in population size towards the end of the 20th century is linked to successful adaptation to the new wintering grounds by the Geese (following the shift away from the Caspian region), and to the recovery of raptor populations– which provide protection against predators – as a consequence of the reduction in the use of harmful pesticides.

2.5 Population size and trend

Numbers of Red-breasted Geese are believed to have been roughly stable from the 1950s to the late 1980s. Count totals show an increase during the 1990s, followed by a significant decline during the first half of the decade 2001–2010 (figure 4). Whilst this general pattern is widely accepted, the magnitude of the changes is likely to have been less severe than indicated by the numbers.

Temporal changes in the number of Red-breasted Geese are difficult to determine with confidence, as a result of the practical limitations involved in undertaking comprehensive surveys. Although count data from the wintering range are available from several years throughout the mid 1950s to late 1980s, most figures are clearly unrepresentative. Efforts to undertake coordinated surveys began in the early 1990s, and continue to the present day, particularly in Bulgaria, Romania and Ukraine. Doubts remain over the accuracy of the more recent totals, as counts in the eastern part of the wintering range are less comprehensive, and it is thought that a significant number of birds may winter outside the surveyed area, particularly during mild winters which have become more frequent in recent years. Counts of passage and/or wintering birds are made in southwest Russia and Kazakhstan, and support the general picture from coordinated winter surveys.

The first large estimate of the Red-breasted Goose population is 60,000 birds, made in 1956, when the population was centred on the Caspian region. Between this initial estimate and 1967, the population was believed to vary between 50,000 and 60,000 individuals. Between 1969 and 1990, the maximum number recorded in the non-breeding areas was 25,907. Whilst a population decline is suspected to have occurred, it is impossible to confirm or quantify since counts clearly underestimated the true totals, partly as a result of a lack of adequate surveys in the newly established wintering areas. The more comprehensive coverage subsequently enables a confident estimate of 90,000 individuals at the end of the 1990s; 88,000 were counted in Kazakhstan in autumn 1996; and 88,425 were recorded during a survey of the main wintering areas in 2000. This is thought to represent an increase in population size since the 1970s.

Counted totals declined dramatically after 2000 (e.g. to just 23,000 in 2001/02). Whilst these, and subsequent counts, provide strong evidence for a large decrease following 2000, it is unlikely that the decline was as severe as the numbers suggest and these dramatic figures may, in part, be due to surveying effort. During mild winters, some birds remain farther east in the flyway, where surveys are less comprehensive. Large numbers have been recorded at Manych-Gudilo, Russia, during *ad hoc* surveys in recent winters, and it is suspected that other birds may winter at, as yet, unknown sites. Total counts of 40,800 in spring 2008 (primarily as a result of a large count in Kalmykia) and 44,300 the following winter lend further weight to the suggestion that counts in the mid 2000s were incomplete because birds wintered away from the traditionally surveyed sites.

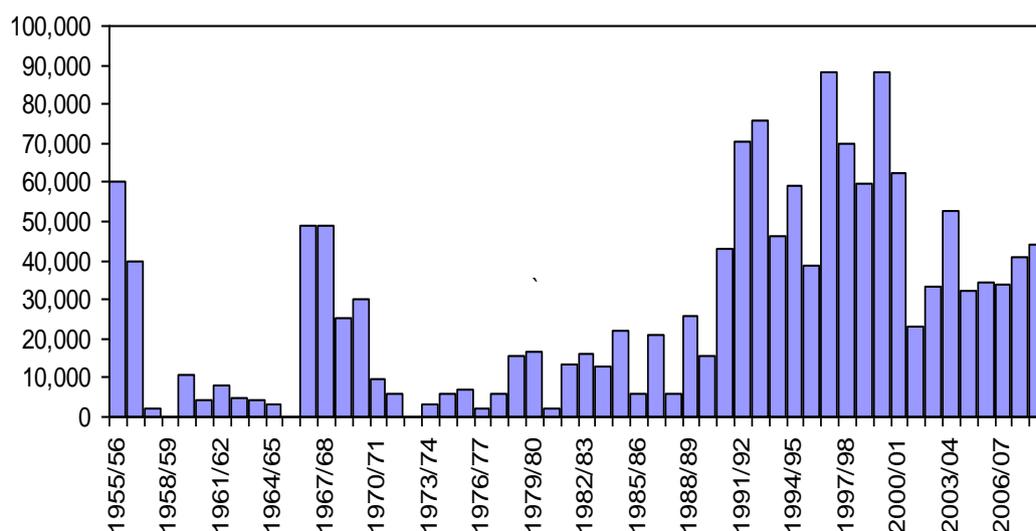


Figure 4: Peak counts of Red-breasted Geese (*Branta ruficollis*), 1956–2009.

It is not clear what may have caused a decline of such magnitude over such a short period after 2000, followed quickly by apparent stability in numbers. Given that the winter distribution has, in the past, moved a large distance (from the Caspian to the Black Sea, a distance of about 1700 kilometres) over a short period, it is possible that this phenomenon may also account for part of the apparent recent decrease. Although it is justified and precautionary to assume that a large decline has occurred in the last decade, there is a clear need to extend survey coverage in order to determine the accurate trend in population size.

The entire population is found in Russia during summer and the large majority passes through Kazakhstan and southwest Russia, during both spring and autumn migration. In winter, the population is spread between Ukraine, Bulgaria and Romania, but particularly in cold winters, the large majority of the population can reach Bulgaria, having passed through Ukraine and Romania.

Table 1: Average peak counts of Red-breasted Geese from surveys during 2005/06 to 2008/09

	Country				
	Bulgaria	Romania	Ukraine	SW Russia	Kazakhstan
Average peak counts	16,200	12,200	20,200	17,300	26,500

The number of birds that reaches Bulgaria varies according to the weather, with 28,200 individuals recorded in February 2006 (representing more than 80% of the total counted in all countries) whereas the following winter (which was mild), a peak of just 2450 was counted. The average peak counts generally occur at the start of the spring migration in southwest Russia, and during the autumn or spring migration in Kazakhstan. The fact that the whole population is not present at the same time, and/or difficulties in obtaining complete coverage, means that peak counts are considerably smaller than the true number that passes through both countries.

There is some indication that the numbers of birds reaching the westernmost part of the wintering range has declined in recent winters, and it is expected that this may continue in the near future, resulting from a warming of the climate. However, the key roosts in Bulgaria remain numerically some of the most important sites in the range, and are likely to continue to support large numbers on a regular basis during appropriate conditions.

Numbers in other range states are much smaller. During 2000–2009, estimates for Azerbaijan did not exceed 200. Up to 2000 birds were recorded in Greece, and similar numbers in Turkey, during particular cold winters in the 1990s.

3. Threats

3.1 General overview

The Red-breasted Goose is a relatively long-lived, slow-breeding species. Consequently, factors which affect adult survival are likely to prove the most significant threats as even relatively small changes in mortality may affect population levels. Like many other Arctic-breeding waterbirds, breeding success can vary considerably between years, and the species is therefore less sensitive to issues that affect productivity only in the short-term.

In addition to threats which result in direct mortality, those causing prolonged disturbance are also of considerable concern. Disturbance causes both increased energy expenditure, due to birds flying away from the source of disturbance, and reduced energy intake, due to reduced feeding time. At an individual level, this results in poorer body condition, increasing the risk of mortality due to starvation and general poor health. It can also have knock-on effects by delaying or prolonging migration because the geese do not have sufficient energy reserves, or reducing breeding productivity if the birds arrive at the breeding ground too late or in too poor condition.

Several key threats are identified for Red-breasted Geese. Changes in agriculture and abandonment of grazing will reduce food availability at staging and wintering grounds. Wind farms will also result in the loss of feeding areas, and have the potential for significant mortality through collisions with turbines, while increased human development in the same areas is likely to result in loss of habitat and greater disturbance. The expansion of oil and gas operations in the breeding area may cause disturbance to breeding birds. Rodenticides have caused accidental deaths of birds in the wintering grounds. Though legally protected throughout their range, geese are shot accidentally or deliberately in all range states. Climate change is predicted to have a number of direct effects and also to exacerbate other threats. Gross changes in the

species' distribution as a result of climate change will lead to obvious difficulties for the effective implementation of actions.

Few of these threats have been studied for the Red-breasted Goose specifically. Data on the extent of the threats or on demographic parameters are often poor or lacking, making it difficult to draw firm conclusions about the impact on the species. Data from other species, including well-studied species in Western Europe and the Lesser White-fronted Goose, which shares a similar range and threats, provide clear evidence of the potential of these threats to affect Red-breasted Geese. It should be noted, also, that mortality from human causes, such as shooting and collision, is considered to be additive, so that the cumulative effect of even low level mortality may have a significant effect on the population as a whole.

Many of the threats identified in this plan remain the same as in the previous international action plan, compiled in 1995.

3.2 List of critical and important threats

3.2.1 Changes to the agricultural regime in the wintering areas

In the wintering areas, Red-breasted Geese feed primarily on arable crops and agricultural grasslands. In particular, they favour the shoots or early growth of winter wheat, barley, maize, rape, pasture grasses and grass shoots, and spilt grain. These are currently the main crop regimes around key roost sites in Bulgaria, Romania and Ukraine, but there has been an increase in the extent of other crops, such as grapes, vegetables and sunflowers, which are unsuitable for geese. A change in the agricultural regime, from wheat to cotton, and hunting are believed to have been the primary reasons for the shift in winter distribution from the Caspian to the Black Sea. The switch from arable to other crops is likely to increase, driven by predicted climate change and consequent changes in agricultural policy, and by the financial rewards from 'cash crops', particularly in Bulgaria and Romania following their accession to the EU. Increasing conflict between geese and farmers can be expected, particularly with increasing agricultural privatisation and intensification in these countries. The extent of crops required to support feeding Red-breasted Geese in the wintering areas has not been quantified, but given the significant proportion of the population potentially affected and the small number of roost sites used, changes over a relatively small part of the region may have a large effect, and there are currently no or few management schemes or other mechanisms designed to alleviate conflict between geese and farmers in the range states.

Importance: High

3.2.2 Abandonment of grazing in staging/wintering areas

Manych-Gudilo, southwest Russia, is a major staging area, and perhaps acts as a bottle-neck for the majority of the population in autumn and spring. A significant number of birds also winter at the site in mild weather. Red-breasted Geese have traditionally favoured semi-natural and agricultural grasslands for feeding but grazing by livestock in the area has largely been abandoned in recent years, primarily because it is not commercially viable. Consequently, the pasture has become too long and is unsuitable for the geese. The reduced feeding opportunity may be particularly serious during migration, and could have a significant effect on the birds' fitness upon reaching the breeding grounds. The effect of reduced feeding opportunity may be exacerbated by geese having to seek alternative areas outside the protected areas, where they may be subject to higher disturbance.

Importance: High

3.2.3 Wind farms in the wintering area

The open landscapes around the Black Sea favoured by Red-breasted Geese during winter have a high wind resource, with a substantial potential for wind farm development. Wind farms affect birds mainly through collision with turbines and disturbance displacement, resulting in increased direct mortality and preventing access to feeding areas. Some badly sited wind farms have resulted in high mortality for some species, but effects can be site and species-specific, occur under specific conditions (e.g. poor visibility), and are generally poorly understood. Whilst some species habituate to the turbines, and may even feed among them, it may take several years for this change in behaviour to occur. Red-breasted Goose mortality from collisions with power lines has been recorded in Ukraine.

Geese are particularly sensitive to this type of mortality as they are long-lived and have low fecundity, and evidence suggests that anthropogenic winter mortality tends to be additive rather than compensatory. Though no data are available specifically for the effects on Red-breasted Geese, having only a relatively small population, being highly aggregated into large flocks, and using a presumed narrow migration corridor, gives cause for concern. Multiple sources of low levels mortality may, cumulatively, have a significant impact upon the population.

Energy companies have submitted many hundreds of proposals for new wind farms within the last five years, particularly in the Dobrudzha region of Bulgaria and Romania, but also the Crimean peninsula and elsewhere in Ukraine. A rapid increase in construction has already begun in some areas. Whilst sympathetic planning can alleviate potential conflict with wildlife, spatial planning in the region currently appears not to be undertaken strategically or to have little regard for biodiversity (as evidenced by ongoing infringement procedures undertaken by the EC), and many proposals are close to or within Natura 2000 sites and other protected areas including key roosts and feeding areas for Red-breasted Geese.

Importance: High

3.2.4 Oil and gas infrastructure expansion in the breeding grounds

The breeding grounds of Red-breasted Geese have, until recently, been little-used by humans. The increase in oil and gas operations in the region has, however, seen a significant expansion into previously remote areas and an increase in infrastructure that also allows access by others not directly involved with the energy industry. This has resulted in disturbance of breeding birds by oil and gas operations, and by the increased number of people in the region, through recreation and other activities. Operations may also result in direct habitat loss to a small degree, if infrastructure is inappropriately sited in areas particularly favoured for nesting. Further expansion of operations in the region is anticipated, particularly as the predicted warming of the climate will allow easier access and a more hospitable working environment in more remote areas.

Importance: High

3.2.5 Rodenticides

Farmers in the wintering areas of Red-breasted Geese use a variety of pesticides. The use of rodenticides in particular has caused poisoning events in geese, with die-offs seen in Bulgaria, Romania and Ukraine. Whilst this results in part through inappropriate application, though there have also been cases where geese appear to have been specifically targeted by farmers. EU legislation imposes restrictions on the sale and use of pesticides, and new laws prohibit the production and use of several very toxic substances (e.g. carbofuran) by the end of 2008. Concern remains, however, that some farmers have remaining stocks of unused substances and may continue to use them illegitimately, and that there will be poor enforcement of the regulations.

Importance: High

3.2.6 Hunting

Hunting is a key threat to Red-breasted Geese throughout the flyway. It results in direct mortality, from both accidental and deliberate shooting, while disturbance from hunting activities, regardless of the species targeted, can result in reduced survival. As a long-lived, slow-breeding species, the population is sensitive to changes in adult mortality more than in fecundity. Whilst no specific studies have been undertaken for Red-breasted Geese, data from other geese species strongly suggest that anthropogenic mortality (such as hunting and collision) is primarily additive. Thus, it is not compensated for by a density-dependent reduction in natural mortality, and has a direct negative effect on the population trend.

Although the Red-breasted Goose is protected throughout its range, there is significant deliberate hunting in some areas, particularly on migration in Russia, Kazakhstan and Ukraine, primarily for sport. Low level 'aboriginal' hunting occurs in the Arctic breeding grounds. Red-breasted Geese often form mixed flocks with Greater White-fronted Geese, which is a legal quarry species, and so are frequently shot in error by hunters who misidentify it or are unaware of its presence. As an 'incidental' target of hunters who are primarily targeting a different species, there is little chance of a density-dependent relaxation of hunting

pressure: because they are not the primary target, hunting pressure does not lessen as they become rarer. There is little quantitative information on the scale of mortality or to evaluate its impact, however, Research in Bulgaria during 1995–2009 indicated that 3–5% of the Red-breasted Goose population is killed or injured by hunting each year. It is likely that hunting levels of mortality are higher in the eastern part of the flyway.

Hunting may also cause high levels of disturbance, even when the intended target is legal quarry species. In particular, as well as shooting birds as they fly to or from roost sites, hunters pursue flocks of geese feeding in fields (which are mostly not within protected areas), causing considerable disruption and loss of feeding time, and which may be critical, for example, during periods of severe weather or prior to migration. The long hunting season in some countries, for example, extending into late winter, is a particular cause of concern, as this affects the birds' ability to increase energy reserves prior to migration and breeding.

Although the species is protected, a significant proportion of hunters are either unaware of regulations or choose to ignore them. It is believed that in some range countries, numbers of foreign sport hunters (primarily from west European countries) have increased and that they are more likely to ignore restrictions preventing hunting on certain days of the week. Enforcement of hunting regulations is poor in many areas, and the situation is further exacerbated by lack of dialogue with hunters to raise awareness of regulations and goose identification.

Importance: High

3.2.7 Development in the wintering area

The Black Sea coastal zone favoured by wintering geese is an area of rapid infrastructure development. The Romanian coastal area has long been popular with tourists although the Dobrudzha area of Bulgaria is generally sparsely populated. There has, however, been a significant increase in developments, particularly associated with tourism – such as hotels and golf courses – and a large number of proposals have been submitted for further developments in the last five years. General urban expansion is also anticipated to increase. Such developments, if inappropriately sited, have the potential to reduce the feeding area for the geese both directly, and, through disturbance, also indirectly. Many of the proposals are close to or within protected areas, and due to proximity with some key wetlands, have the potential to cause disturbance to roost sites used by Red-breasted Geese. Spatial planning in the region currently appears to have little regard for biodiversity (designation of Special Protection Areas under the EU Birds Directive has been delayed both in Bulgaria and Romania), and the pressure for development is anticipated to increase.

Importance: Medium, possibly high

3.3 Additional threats

3.3.1 Fishing at roost sites

Red-breasted Geese favour relatively large waterbodies as roost sites, which they may also use during the day to drink, wash or rest. Regular disturbance at these sites may result in increased energy expenditure by the birds and, in extreme cases, for the site to be abandoned. Fishing is permitted at some roosts in Bulgaria and Romania. At many sites, fishing permits are required and certain restrictions apply (for example, fishing is only permitted in certain areas and at certain times of the day) to limit disturbance to the wildlife interest. Poaching is known to occur at some key roosts, ignoring the restrictions and causing disturbance to the geese. Net-fishing from boats is focused around dawn and dusk; the latter can be particularly problematic since it prevents the geese settling at the roost sites in the evening. There is currently little enforcement of the regulations. Unrestricted fishing (and other activities, such as boating, which increase disturbance) can be expected to increase with increasing human population in the area as a result of development and tourism in the region.

Importance: Low to medium

3.3.2 Disturbance in agricultural feeding areas

Geese feeding in agricultural areas may come into conflict with farmers. Birds may be scared from fields because of the damage and/or perceived damage that they cause to crops. This disturbance is a potential

threat because it results in increased energy expenditure for escape flights, and reduced energy intake through reduced time spent feeding. Whilst scaring is currently thought to be relatively low scale, it may be anticipated to increase as a result of increasing intensification of farming and demands for higher yields, particularly in Bulgaria and Romania following accession to the EU. Even relatively low level disturbance may become significant when combined with other sources of disturbance (e.g. hunting) and reduced food availability (e.g. due to changes in cropping regimes or wind farm construction), and such issues will need to be monitored and managed in combination.

Importance: Low

3.3.4 Killing birds for disease sampling

Since summer 2006, there have been many outbreaks of highly pathogenic avian influenza (HPAI) H5N1 from central Russia to Western Europe (see 3.3.2 for further detail). Wide-scale testing has been instigated to understand the prevalence of the disease in wild birds and their role in spread of the disease. Catching wild birds, especially wildfowl, is, however, difficult and expensive, and several countries – including Ukraine and Greece – have advocated that wild birds be shot to obtain samples for testing. Whilst numbers of Red-breasted Geese shot for this reason are likely to be small, the cumulative effect of this and other sources of mortality may be significant (see 3.1.7).

Importance: Low

3.4 Potential threats

3.4.1 Lead poisoning

Lead shot is the preferred ammunition for many hunters. It is highly toxic and causes high mortality in many wildfowl, including non-target species, which accidentally ingest spent shot pellets along with grit, used to aid digestion. The banning of lead shot over wetlands is widely recommended, and appropriate legislation is being introduced in many European countries. The use of lead shot is, however, legal in all of the major range states for Red-breasted Geese, and only in Bulgaria is a ban currently being considered. (Many hunters in countries where lead is banned continue to use lead shot in wetland areas contrary to the legislation). Another potential source of poisoning is lead used as fishing weights, though the extent of use is probably far less in range states. It is currently unknown if lead poisoning is an issue in Red-breasted Geese, what the potential sources of lead are for this species, or whether lead poses a greater risk in particular parts of the flyway. Lead poisoning is not cited as a threat for Lesser White-fronted Geese.

Importance: Unknown, potentially medium

3.4.2 Disease

In summer 2006, outbreaks of highly pathogenic avian influenza (HPAI) H5N1 spread west from South-Eastern Asia into southern Russia and Europe. Many species of wildfowl were affected, and the virus was detected in Red-breasted Geese found dead in Greece. The Convention of Migratory Species and UN Food and Agriculture Organisation's Scientific Task Force on Avian Influenza and Wild Birds highlighted Red-breasted Geese as one of two globally threatened species for which HPAI H5N1 posed a conservation concern. Many parts of the species' flyway have experienced outbreaks of H5N1, including southern Russia, Ukraine, Romania and Bulgaria. Because Red-breasted Geese form large, dense flocks, both at roosts and while feeding, there is potential for rapid spread of the disease and a large die-off. Outbreaks of H5N1 have, however, been fewer and less severe, in terms of numbers of wild birds killed, than originally anticipated by some authorities, and the virus has been recorded extremely rarely in live wild birds tested for the disease. Further, whilst measures can be taken to minimise transmission of the disease from protected domestic poultry to wild birds and *vice versa*, there are no practical actions to prevent transfer among wild birds. A key concern is public reaction to wild birds during outbreaks. Fear of the disease has previously resulted in calls from some authorities, including several in Russia, to cull wild birds, particularly wildfowl, to prevent spread of the disease.

Importance: Unknown, probably low, potentially medium

3.5 Climate change

Climate change is one of the biggest threats to biodiversity globally over the next century, and is anticipated to have a number of direct and indirect effects on Red-breasted Geese. It is likely to exacerbate several of the threats already identified. Whilst tackling this threat directly is beyond the scope of any action plan, issues for Red-breasted Geese are highlighted below in order that appropriate mitigation or adaptive management can be considered, and to prevent implementation of any actions that would be negated in the short-term by the effects of climate change.

A significant effect will be the loss of breeding habitat. Northwards expansion of the taiga zone will reduce the extent of tundra, with significant losses predicted according to even relatively conservative models. This will be exacerbated by greater ease of human access to the region, which is likely to result in further habitat loss and greater disturbance. The impact may also be compounded by changes in the numbers and distribution of predators – both those which feed on eggs or chicks, and those raptors and gulls which provide protection to nesting geese – as a result of changes in habitat and climate, and also of farming practices in the area, particularly reindeer herding.

Changes in the timing of seasonal events may result in phenological mismatch. These effects are likely to be most important on the breeding grounds. For example, the emergence of key foods for goslings may not match the time of hatching, or the timing of spring growth of food plants used by geese on migration may no longer be appropriately phased with the onset of snow melt exposing food and nest sites on the breeding grounds.

Changes in climate will affect agricultural policies in the medium to long-term. The changes will affect crops, which can be grown profitably in different regions, as well as the timing of sowing and harvesting. (Grassland suitable for wintering Pink-footed goose *Anser brachyrhynchus* wintering in northern Europe has been predicted to decline by more than 50% by 2050 as a result of climate change affecting agricultural practices.) This will affect food availability for Red-breasted Geese both at migration stopovers and on the wintering grounds, and could conceivably result in large changes in the species' distribution or the length of use of particular areas each season.

Changes in goose winter distribution will also be directly influenced by changes in temperature and precipitation. Warmer winters will enable birds to winter further east ('short-stopping'), because energy demands on the birds will be less, due to easier access to food as a result of deep snow occurring less frequently, and because less ice cover allows access to open water for roost sites.

Large changes in the choice of wintering and staging sites will have key implications for the implementation of conservation measures. Networks of key sites for statutory protection and site management are likely to change, as will areas which require awareness schemes that engage with stakeholders (e.g. compensation schemes for farmers, awareness-raising with hunters). Consideration will need to be given to the likely speed of such changes, to ensure that actions are implemented appropriately, and to anticipate new areas where measures should be implemented before known threats cause conflict and have a negative effect on the species.

Importance: High

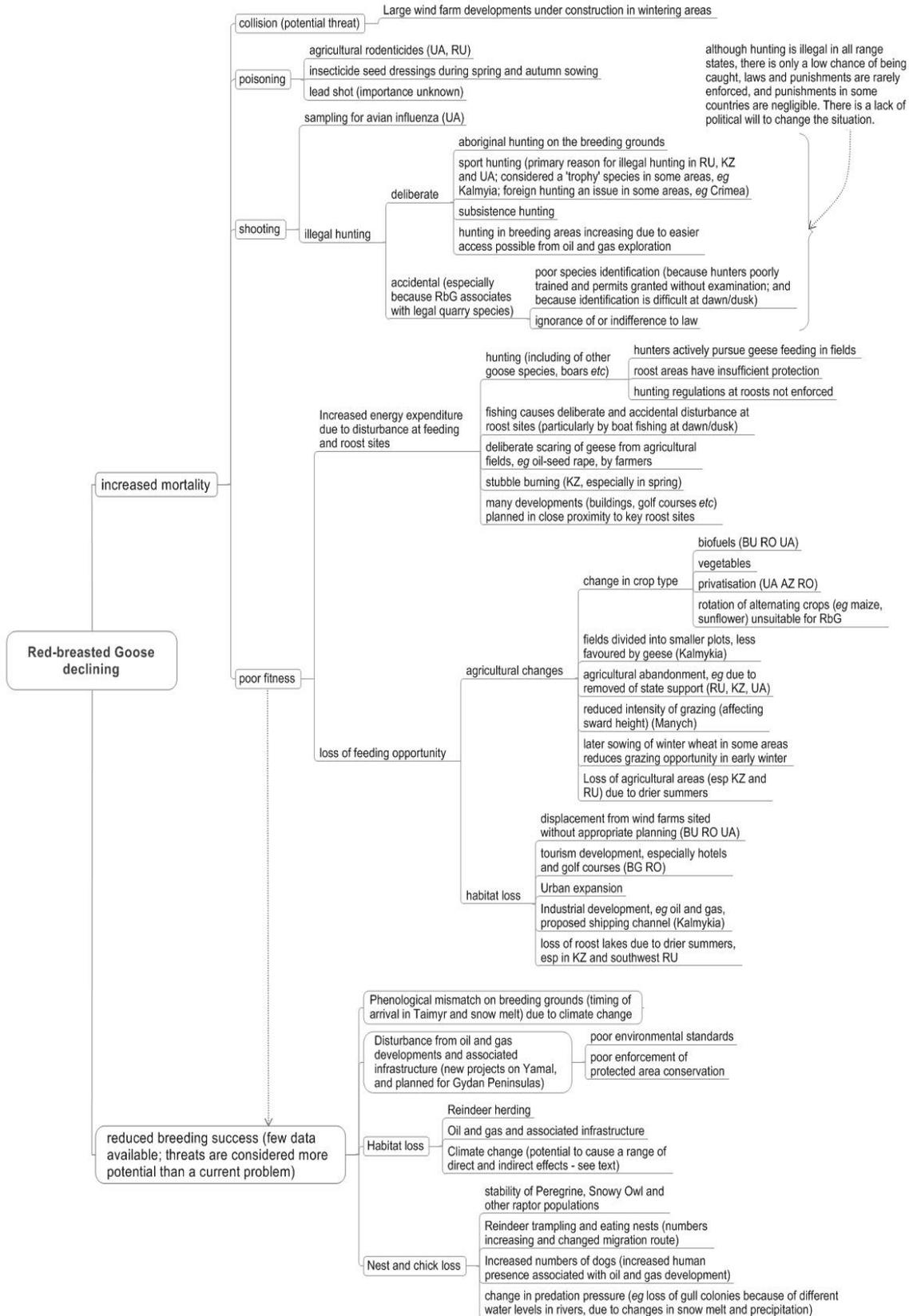


Figure 5: Problem tree for Red-breasted Geese (*Branta ruficollis*)

The problem tree summarises the main threats to Red-breasted Geese, their root causes, and how they impact upon the species.

4. Policies and Legislation Relevant for Management

4.1 International conservation and legal status of the species

The Red-breasted Goose is globally threatened, being classed as Endangered on the IUCN Red List. It was up-listed from Vulnerable in 2007 in response to an apparent rapid population decline. As a consequence, it has been accorded a high level of protection in multilateral environmental agreements (MEAs).

Table 2: Summary of the international conservation and legal status of the Red-breasted Goose (*Branta ruficollis*)

Global status	European status	EU Birds Directive	Bern Convention	CMS	AEWA	CITES
Endangered A2bcd, A3bcd, A4bcd	SPEC 1 (W)	Annex I	Appendix II	Appendix I & II	Northern Siberia/Black Sea & Caspian Column A (1a 1b 3a 3c)	Appendix II

It is important to note that several international instruments and MEAs do not apply throughout the range of Red-breasted Goose, notably EU Directives, the Convention on Migratory Species (CMS) and its subsidiary African-Eurasian Waterbird Agreement (AEWA), and the Bern Convention.

Table 3: Applicability of major international conservation instruments to Principal Range States for the Red-breasted Goose (*Branta ruficollis*)

Principal Range State	EU Directives & policies	Bern Convention	CMS	AEWA	CBD	Ramsar Convention
Bulgaria	Yes	Yes	Yes	Yes	Yes	Yes
Kazakhstan	No	No	Yes	No	Yes	Yes
Romania	Yes	Yes	Yes	Yes	Yes	Yes
Russian Federation	No	No	No (MoU signatory)	No	Yes	Yes
Ukraine	No	Yes	Yes	Yes	Yes	Yes

4.2 National policies, legislation and ongoing activities

Information on national policies, legislation and ongoing activities in each range state are summarised in Annex 1 and Annex 3. The species is legally protected (from direct persecution) in all major range states. National Action Plans have been developed in Bulgaria (2002-06), Romania and Ukraine (though they have not been formally adopted).

All of the 11 Bulgarian and seven Romanian Red-breasted Goose Important Bird Areas (IBAs) are designated as EU Special Protection Areas almost in their entirety. The majority (seven in Bulgaria and three in Romania) are also Ramsar sites, but, as with most national protected area designations in these countries, the latter nearly all cover only the water bodies on which the geese roost and loaf, rather than the wider landscape on which they depend. In the Ukraine, half the sites receive no national or international

protection, but the four protected Ramsar sites (one is also a biosphere reserve) cover most or all of the IBAs. Around half (at least nine of 19) of the staging sites in Kazakhstan have some form of protection, including four designated as Ramsar sites. In the Russian Federation, a little over half (17 of 31) of the Red-breasted Goose IBAs are at least partially protected, mainly through national legislation, and four are also Ramsar sites. Although there are no IBAs for which breeding Red-breasted Goose are formally the trigger species, the Taimyr and Gydan peninsulas (though not Yamal) contain approximately 15 IBAs that may support the species. There are several very large protected areas in the breeding range, including the Great Arctic State Nature Reserve, which occupy over 4 million ha. Overall, however, only approximately 10% of Taimyr is protected, with approximately similar proportions of Yamal and Gydan.

4.3 Ongoing activities for conservation of the species

4.3.1 Recent conservation projects

An informal expert Red-breasted Goose International Working Group (RbGIWG) was established in 2005, following a workshop to review the previous EU Action Plan, in order to co-ordinate and promote conservation activities for the species across the flyway. This group was later transformed into an inter-governmental working group under AEWA (AEWA Red-breasted Goose International Working Group) which coordinates the implementation of the Single Species Action Plan for the species.

An EU-LIFE Project (LIFE 04 NAT/RO/000220 'Improving wintering conditions for *Branta ruficollis* at Techirghiol') was implemented jointly by the Romanian Water Authorities and Romanian Ornithological Society at Techirghiol Lake, Romania, between 2004 and 2008. The purpose was to maintain and protect the Red-breasted Goose population at Lake Techirghiol and its vicinity. The project achieved the designation of Lake Techirghiol as an EU SPA and a Ramsar site, and developed a Management Plan for the site. Hydrological management ensured that the salinity levels which prevent the lake freezing during winter were maintained. An area of agricultural land was leased and is managed for geese, to create a safe area and reduce conflict with farmers, and this also led to agri-environment recommendations to government.

4.3.2 Monitoring

Under the previous expert RbGIWG, an initiative was launched in 2003/04, known as the Red-breasted Goose Common Monitoring and Research Programme. This aims to conduct co-ordinated (usually simultaneous) autumn, winter and spring counts of the species at key sites in the flyway. Currently, fortnightly counts are undertaken by Bulgarian Society for the Protection of Birds and the Romanian Ornithological Society, with monthly counts by the Ukrainian Society for the Protection of Birds in Ukraine and the Azov-Black Sea Ornithological Station. Irregular counts are also made at the Manych-Gudilo complex in Russia. Coverage of key sites in Bulgaria and Romania is effectively complete, but is more sporadic in Ukraine, and much localised in Russia. This co-ordinated monitoring has greatly improved the information available about the species' distribution and trends, and provides a model that can be extended more widely in the range.

Reasonably comprehensive counts are conducted of autumn staging birds in Kazakhstan's Kostanay and Northern regions, and have occasionally provided the peak annual counts of the species. Counts in Azerbaijan are severely restricted by available capacity, and their completeness is not known. Many counts of Red-breasted Geese away from these core areas are made during the International Waterbird Census in mid January.

Currently the great majority of the winter monitoring focuses on counts only. Information on pressures (e.g. hunting, collision mortality) and on aspects of demography and ecology (e.g. productivity, survival and body condition), which are frequently gathered in northwest European goose populations, are not yet systematically monitored.

5. Framework for Action

Aim

To remove the Red-breasted Goose from the IUCN Red List.

Objective

To down-list the Red-list status of Red-breasted Goose from Endangered to Vulnerable within 10 years.

Eight **results** are identified to deliver the goal, to be achieved by implementation of specific actions (Tables 4–11). The majority of actions address the key threats. In addition, actions are identified to ensure that species monitoring is undertaken to inform implementation of the action plan: in particular, so that any deterioration in the species' status is detected, and the effect of implementing the action plan can be assessed; and so that key demographic parameters (survival and productivity) are monitored to help understand how threats are operating upon the population. Because populations are highly concentrated at individual sites, an international network of protected areas is essential for the conservation of the species, and a further series of actions are identified to ensure that this network functions effectively.

Actions should be implemented in all primary range states unless otherwise indicated. It is noted that it may be impractical to have completed some actions during the period of the plan, and this is reflected in the timescales for those actions. It is, however, expected that significant progress should have been made on all actions by 2020.

Some actions are not specific to geographical areas. For example, generic analyses (e.g. modelling the risk of collision with wind turbines) are not country specific. Similarly, the development of many guidelines (e.g. best-practice for EIAs and schemes to minimise conflict with agriculture) will be largely similar for all countries, albeit that adaptation to national legislative frameworks may be required. Such actions can therefore be developed initially by one country on behalf of all range states, to share efforts and costs, and to speed delivery of the action plan by enabling several actions to be developed at the same time. Range states are encouraged to cooperate through the AEWA Red-breasted Goose International Working Group.

Footnotes capture suggestions made at the action-planning workshops that should facilitate implementation of certain actions, or identify specific issues for consideration. Cases of potential overlap between actions for different objectives are highlighted, so that implementation might address several objectives at the same time.

The objectives and actions listed below should be incorporated into the national work plans of each range state in which they apply. Range states are, however, encouraged, through the AEWA RbGIWG, to develop and share best practice and imaginative ideas to implement actions. Range states are also encouraged to develop collaborative cross-border projects for implementation, as these are likely to be more effective than implementing actions in isolation.

Many of the conservation needs for Red-breasted Geese are not unique to this species. Range states are encouraged to consider how implementation of the actions could also have benefits for other species. Coordination with action plans for other species, e.g. Lesser White-fronted Geese and Siberian Crane, is encouraged, as they will contain similar actions.

Actions

Table 4: Result 1: Sufficient feeding opportunity available in staging and wintering areas

	Action	Priority	Timescale	Organisations
1	Model habitat requirements for feeding, based on choice of different crops and habitats, intensity of use, and the location of feeding areas in relation to roosts ³	High	Completed by 2020	Conservation NGOs, researchers
2	Determine nature and extent of potential conflict with agriculture, by assessing crop damage ⁴ and predicted agricultural changes ⁵ in the short- and medium-term	High	Completed by 2020	Conservation NGOs, agricultural authorities, researchers
3	Introduce agri-environment schemes (or include provisions for RbG in existing schemes) that encourage sympathetic farming for RbG ⁶ , through incentives (e.g. compensation schemes) to adopt appropriate practices ⁷	High	Completed by 2020	Agricultural authorities, farming associations
4	Hold awareness-raising meetings and training workshops to ensure farmers apply appropriate farming practices for RbGs and can access subsidy payments	High	Completed by 2020	Farming associations, conservation NGOs,
5	Directly manage areas (through purchase or long-term land-lease) to create alternative feeding areas for RbGs ⁸	Medium	Significant progress by 2020	Conservation NGOs, farming associations

Satellite-tracking (Action 1) is also required to fulfil a number of other actions (under Results 2, 6 and 7). Some actions will require precise information on the location of feeding birds and/or flight heights (and will therefore use satellite transmitters with GPS capability), but consideration should be given to coordination of these actions. Projects that acquire land for direct management (Action 5) could also incorporate measures to minimise disturbance to feeding birds from hunting and other sources (see Results 2 and 5).

³ Satellite-tracking and abdominal profile assessments are required to inform this analysis.

⁴ Potential for damage to crops could be based on data from other species; review lessons learned from goose habitat management issues elsewhere in the region (e.g. northwest and far east Russia).

⁵ In particular, identify changes to cash crops (e.g. vegetables and vines) and biofuels not used by geese.

⁶ Undertake feasibility and/or pilot study to develop and test solutions for RbG-friendly agriculture based on the effectiveness of existing schemes, e.g. in the UK. This study should also address the issue of scaring birds in fields to avoid crop damage, e.g. linked to compensation payments. Transfer solutions into the post-2013 CAP financial instruments.

⁷ To include recommendations for crop rotations and effective management of agricultural burning.

⁸ Potential for this approach exists in Ukraine and around Manych-Gudilo, Russia, in particular, following abandonment of agricultural areas.

Table 5: Result 2: The impact of development in the wintering and staging areas minimised through strategic planning

Action	Priority	Timescale	Organisations
6 Model the potential impact of proposed wind farms on RbGs as a result of collision and loss of feeding areas ⁹	High	Completed by 2020	Conservation NGOs
7 Develop a sensitivity map for RbG ¹⁰ to provide an appropriate spatial framework for land-use planning; provide a GIS-version to developers and authorities	High	Completed by 2020	Conservation NGOs
8 Conduct a Strategic Environmental Assessment ¹¹ for developments along the Black Sea coast to guide strategic spatial planning in the region	High	Completed by 2020	Ministries of environment, conservation NGOs, regional authorities, developers, investors, energy companies
9 Ensure Environmental Impact Assessments are undertaken for individual developments, and within the context of strategic spatial planning regionally ^{12,13,14}	High	Ongoing	Regional authorities, energy companies
10 Develop guidance for authorities and developers on the risks to RbG, identify potential RbG-sensitive recommendations and identify potential mitigation solutions	Medium	Completed by 2020	Conservation NGOs
11 Document and disseminate best practice case studies ¹⁵ for EIA and mitigation	Medium	Significant progress by 2020	Conservation NGOs
12 Designate key sites (roosts, their immediate hinterland and key semi-natural feeding areas) as protected sites (e.g. EU SPAs) to prevent development within their boundaries; and raise awareness among developers of the importance of protected sites	High	Completed by 2020	National authorities, conservation NGOs

⁹ There is a need to determine to what extent data from studies of collision risk and the effects of disturbance for other species are applicable to RbG. Satellite-tracking is required to identify flight heights and flight routes.

¹⁰ The sensitivity map would identify key areas used by geese, and major flight-lines between them, as areas where developments would cause greatest conflict. Satellite-tracking and field work is required to map feeding areas and linkage with roosts.

¹¹ Specific emphasis should be given to wind farms, and this aspect should be developed as priority.

¹² Consider the creation of national working groups to consider conflicts between developments and wildlife interests; establishing a group specifically to address wind farms may be justified at least initially.

¹³ Methodological protocols for EIAs should be developed in countries where they are currently lacking.

¹⁴ Ensure NGO sector has capacity for EIA casework.

¹⁵ There is currently little exchange of information between Russian and non-Russian speaking countries; relevant studies from both within and outside the RbG range should be compiled and made available.

Table 6: Result 3: Detrimental development in breeding grounds minimised

Action	Priority	Timescale	Organisations
13 Conduct a Strategic Environmental Assessment for developments for oil and gas exploration within the breeding and moulting areas to identify areas of potential conflict with RbG (RU only)	High	Completed by 2020	Ministry of natural resources, conservation NGOs, regional authorities, state reserves, energy companies
14 Provide guidance to authorities and developers to mitigate development threats ¹⁶ (RU only)	High	Completed by 2020	Conservation NGOs, regional authorities, energy companies
15 Conduct studies to identify drivers for recent expansion of breeding range (RU only)	Low	Significant progress by 2020	Conservation NGOs, state reserves

Table 7: Result 4: Risk of poisoning by rodenticides significantly reduced

Action	Priority	Timescale	Organisations
16 Align legislation in range states concerning banned pesticides and ensure it is enforced	High	Completed by 2020	National authorities, farming organisations
17 Develop and disseminate guidelines for farmers on appropriate use of toxic substances and risks to RbG	Medium	Completed by 2020	Regional authorities, farming organisations

¹⁶ Consider the creation of a cross-sectoral working group.

Table 8: Result 5: Direct and indirect mortality from hunting significantly reduced

Action	Priority	Timescale	Organisations
18 Align hunting season for wildfowl in all countries throughout flyway, avoiding long hunting seasons and spring shooting ¹⁷	High	Significant progress by 2020	National authorities
19 Improve national hunting legislation ¹⁸ , and ensure sufficient capacity for enforcement, particularly patrols at key roost sites	High	Significant progress by 2020	National authorities
20 Raise awareness among hunters of RbG conservation, including tourist hunters from outside range states ¹⁹	High	Completed by 2020	National and local hunting associations, FACE
21 Create hunting-free refuge zones at key roost sites and in key feeding areas ²⁰	High	Completed by 2020	Local authorities, site managers
22 Conduct monitoring to determine levels of shooting	High	Ongoing	National and local hunting organisations, conservation organisations
23 Monitor survival to determine impact of shooting on RbG population	High	Ongoing	Conservation organisations
24 Determine demographic structure of hunters and drivers for hunting	Low	Completed by 2020	National and local hunting organisations, conservation organisations
25 Ensure RbG are not killed for avian influenza sampling (UA only)	High	Completed by 2020	National authorities

¹⁷ Hunting season to be determined based on specialist advice.

¹⁸ Consider scientifically-based guidance/restrictions on hunting regarding spatial and temporal zoning (time of day, proximity to key roosts, hunting practice in fields etc); flexible and adaptive management of the system, taking into account the annual variations in good distribution and phenology; raising penalties for shooting protected species; temporary hunting restrictions during adverse conditions for wildfowl, e.g. cold weather, severe drought or food shortage; including training/testing species identification as part of licensing process for hunters.

¹⁹ Consider workshops/training, and leaflets on species identification.

²⁰ Refuge areas to be of sufficient size to provide disturbance-free core areas. Consider buying or long-term land lease to create private refuges.

Table 9: Result 6: A site network of protected areas functioning effectively

Action	Priority	Timescale	Organisations
26 Undertake satellite-tracking to identify additional key sites in areas where coverage is relatively poor ²¹	High	Significant progress by 2020	Conservation NGOs
27 Designate all key roost sites and key natural/semi-natural feeding areas (those supporting internationally or nationally important numbers) as protected areas under appropriate legislation ²²	High	Completed by 2020	National authorities, conservation NGOs
28 Identify and monitor threats at all key sites	High	Ongoing	Conservation NGOs, local authorities
29 Prepare and implement management plans for all key sites, incorporating specific recommendations for RbG ²³²⁴	High	Significant progress by 2020	Local authorities, conservation NGOs, other site users (e.g. hunting and fishing groups)
30 Implement regulations for fishing at roost sites (e.g. to certain zones, times of day) to limit disturbance of roosting and resting birds, and ensure these are enforced (e.g. through patrols)	High	Completed by 2020	Local authorities, conservation NGOs, fishing groups
31 Review need for land/lease purchase at key sites and immediately adjacent feeding areas to ensure appropriate management and minimise potentially damaging activities ²⁵	Medium	Completed by 2020	Conservation NGOs
32 Implement awareness campaigns among local communities, including schools, around key sites	Medium	Ongoing	Conservation NGOs, local authorities

²¹ Follow up surveys by field surveyors will be needed to assess site importance and determine any threats at new sites.

²² Ensure conservation NGOs have sufficient capacity to prepare relevant documentation.

²³ Create partnerships with relevant stakeholder groups to oversee management and liaise with other site management groups (e.g. share management information, exchange visits) for RbG or other species, e.g. Lesser White-fronted Goose.

²⁴ For IBAs, relevant information (including GIS boundaries) should be documented, IBA caretakers should be identified, and the specific needs of RbG promoted.

²⁵ Concept of ‘private protected areas’ to be developed in KA, RU and UA.

Table 10: Result 7: The species' status and the effect of action plan implementation, assessed by monitoring numbers and demography

Action	Priority	Timescale	Organisations
33 Conduct synchronised surveys of all key roosts in the wintering grounds, extending coverage to east Ukraine and southwest Russia	High	Ongoing	Conservation NGOs
34 Monitor breeding productivity using standardised techniques	High	Ongoing	Conservation NGOs
35 Conduct ringing studies and follow-up fieldwork to monitor survival	High	Ongoing	Conservation NGOs

Satellite-tracking and follow-up fieldwork (see Action 26) is required to ensure Action 33 is undertaken effectively.

Table 11: Result 8: The severity of threat from lead poisoning evaluated

Action	Priority	Timescale	Organisations
36 Determine lead levels in RbG and, if significant, identify where and how RbG ingest lead	Medium	Completed by 2020	Conservation NGOs

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ANNEX 1

The Importance of Threats at the Country Level

Major threats	Breeding area	Wintering and staging areas				
	RU	RU	KZ	UA	RO	BG
Changes to the agricultural regime in the wintering areas	n/a	n/a	n/a	high	high	high
Abandonment of grazing in staging/wintering areas	n/a	high	unknown	n/a	n/a	n/a
Wind farms in the wintering area	n/a	n/a	n/a	high	high	high
Oil and gas infrastructure expansion in the breeding grounds	high	n/a	n/a	n/a	n/a	n/a
Rodenticides	n/a	n/a	n/a	high	medium	high
Development in the wintering area	n/a	n/a	n/a	medium	high	high
Hunting	high	high	high	high	high	high
Additional threats						
Fishing at roost sites	n/a	unknown	unknown	unknown	medium	medium
Disturbance in agricultural feeding areas	n/a	n/a	n/a	low	low	low
Killing birds for disease sampling	n/a	n/a	n/a	low	n/a	n/a
Climate change	high	high	high	high	high	high

n/a = not applicable

ANNEX 2

Key sites for conservation of the species (Important Bird Areas) in the EU and their protection status

In the following table, the area of the IBA that falls within an EU Special Protected Area (Area of IBA protected/ overlap) is given as a proportion, to the nearest 1%, in parentheses after 'SPA' Name.

International Site Name	IBA Area (ha)	Location		Population		Year	Season	Accuracy	Protected Area Name	Protection Status
		Lat	Long	Min	Max					
AZERBAIJAN										
Gizilagach State Reserve	132,500	39.08	49.05	120	340	1996	Winter	Poor	Natural State Reserve and Ramsar Site	Partial
BULGARIA										
Atanasovsko Lake	7,209	42,59	27.45	70	1,444	2003	Winter	Good	Maintained Reserve Atanasovsko Lake, Protected Site Atanasovsko Lake, Ramsar Site, SPA (100%)	Partial
Burgasko Lake	3,092	42,49	27.38	4	6,450	Unknown	Winter	Good	Protected Site Vaya, Ramsar Site, SPA (100%)	Partial
Durankulak Lake	3,356	43.66	28.54	3,020	39,233	1997	Winter	Good	Protected Site Durankulak Lake, Ramsar Site, SPA (100%)	Partial
Kaliakra	16,172	43,40	28.44	5	157	1997	Winter	Good	Kaliakra Nature Reserve, Yailata Archaeological Reserve, SPA (67%)	Partial
Kalimok Complex	9,432	44.02	26.42	120	200	1997	Winter	Good	Protected Site Kalimok-Brashlen, SPA (100%)	Partial
Mandra-Poda Complex	5,988	42.41	27.38	4	16,878	2000	Winter	Good	Protected Site Poda, Protected Site Uzungeren, Protected Site Ustie na r. Izvorska, Ramsar Site, SPA (100%)	Partial
Pozharevo Island	976	44.06	26.69	100	200	1997	Winter	Good	Protected Site Pozharevo Lake, Protected Site Saya Kulak, SPA (100%)	Partial
Shabla Lake Complex	3,195	43.57	28.56	20,000	55,854	1997	Winter	Good	Protected Site Shabla Lake, Ramsar Site, SPA (100%)	Partial

International Site Name	IBA Area (ha)	Location		Population		Year	Season	Accuracy	Protected Area Name	Protection Status
		Lat	Long	Min	Max					
Srebarna	1,448	44.11	27.07	12	1,000	Unknown	Winter	Unknown	Srebarna Maintain Reserve, Biosphere Reserve, UNESCO-MAB Programme, the site is protected under the UNESCO World Heritage Convention, Ramsar Site, SPA (100%)	Complete
Straldzha Complex	2,872	42.62	26.79	46	210	1997	Winter	Good	SPA (100%)	None
Svishtov-Belene Lowland	5,441	43.61	25.22	0	122	1996	Winter	Good	Nature Park Persina, SPA (100%)	Partial
GREECE										
Evros Delta	19,000	40.86	26.00	0	700	1997	Winter	Unknown	Wildlife Refuge, SPA, Ramsar Site, SPA (62%)	Partial
HUNGARY										
Hódmezővásárhely Puszta	10,123	46.30	20.28	2	11	Unknown	Winter	Unknown	National Park Körös-Maros, Ramsar Site	Partial
IRAN										
Lake Kobi	1,200	36.95	45.50	0	16	1970	Winter	Good	Ramsar Site	Partial
Miankalesh Peninsula and Gorgan Bay	97,200	36.83	53.75	0	19	1975	Winter	Good	Wildlife Refuge, Biosphere Reserve, Ramsar Site	Partial
IRAQ										
Haur Al Suwayqiyah	50,000	32.70	45.91	1,000	1,000	1954	Winter	Poor	Unknown	Unknown
KAZAKHSTAN										
Aksuat Lake	4,589	53.40	66.27	425	1,020	2005	Passage	Good	Wildlife Sanctuary	Partial
Akzhan Lake	3,026	54.10	65.42	0	102	2004	Passage	Good	Unknown	Unknown
Balykty Lake	4,138	54.16	68.51	1,000	1,500	2007	Passage	Medium	Smirnovsky State Nature Preserve,	Partial
Bolshoy Kak Lake	11,500	53.34	66.12	1,540	5,020	2007	Passage	Good	Unknown	Unknown
Kamyshovoe-Zhamankol Lakes	3,940	53.57	65.55	32	6,200	1999	Passage	Good	None	None
Korgalzhyn State Nature Reserve	258,963	50.25	69.14	200	800	2006	Passage	Good	Korgaldzinskiy Zapovednik (Nature Reserve), Saryarka steppe and lakes of Northern Kazakhstan (World Heritage)	Complete

International Site Name	IBA Area (ha)	Location		Population		Year	Season	Accuracy	Protected Area Name	Protection Status
		Lat	Long	Min	Max					
									site), Ramsar Site	
Koybagar-Tyuntyugur Lake System	62,345	52.39	65.38	142	65,000	2007	Passage	Medium	Koibagar-Tyuntyugur Lake System is included in the List of Natural Environment Objects of special scientific, ecological and cultural importance, State Natural Heritage Object, Ramsar Site	Partial
Kulykol-Taldykol Lake System	11,960	51.24	61.54	4,870	41,600	1996	Passage	Good	Lake Taldykol has been declared No Disturbance Zone, no hunting, Ramsar Site	Partial
Kushmurun Lake	92,510	52.40	64.46	120	2,704	1997	Passage	Medium	Nature Heritage of Regional importance Urochische Bolshaya Ghora, Objects of State Nature Heritage, the roster of waterbodies included on the list of the National Nature Preservation Fund	Partial
Maliy Kak Lake	9,721	53.46	66.49	840	2,740	2005	Passage	Good	None	None
Naurzum State Nature Reserve	191,381	51.31	64.17	300	5,000	1980	Passage	Medium	Naurzum State Nature Reserve, Saryarka steppe and lakes of Northern Kazakhstan (World Heritage site), Ramsar Site	Complete
Sankebay Lakes	4,675	51.24	63.32	120	500	2006	Passage	Good	None	None
Sarykopa Lake System	51,200	50.13	64.80	0	11,000	1997	Passage	Medium	Sarykopa Wildlife Zakaznik	Complete
Shaglyteniz Lakes and Marshes	34,750	54.60	69.52	1,000	4,000	2005	Passage	Medium	None	None
Shoshkaly Lake System	113,580	53.40	64.56	5	318	1999	Passage	Medium	Unknown	Unknown
Sorbalyk-Maybalyk Lake System	3,400	54.16	66.43	732	1,662	2005	Passage	Good	Unknown	Unknown
Sulukol Lake	3,091	52.10	63.38	0	78	2004	Passage	Medium	Unknown	Unknown
Terenkol Lake	835	54.24	69.12	2,000	5,000	2007	Passage	Good	Smirnovsky State Nature Reserve	Complete

International Site Name	IBA Area (ha)	Location		Population		Year	Season	Accuracy	Protected Area Name	Protection Status
		Lat	Long	Min	Max					
Zhaltyr Lake	2,594	53.59	67.16	640	1,750	2005	Passage	Good	Unknown	Unknown
ROMANIA										
Balta Alba-Amara-Jirlau	2,680	45.23	27.27	250	460	2006	Winter	Medium	Natural Reserve Balta Alba, Natural Reserve Amara, Natural Reserve Jirlau, SCI Balta Alba-Amara-Jirlau-Lacul Sarat Caineni, SPA (9%)	Partial
Balta Mica a Brailei	24,944	44.98	27.92	0	200	2006	Winter	Medium	SCI Balta Mica a Brailei, Natural Park Balta Mica a Brailei, Ramsar Site, SPA (82%)	Partial
Beibugeac (Plopul) Lake	248	45.03	29.12	700	2,500	2006	Winter	Good	SPA (100%)	Complete
Bestepe-Mahmudia	4,290	45.12	28.69	600	700	2006	Winter	Good	0.24% of its territory overlaps with Danube Delta Biosphere Reserve territory, SPA (85%)	Partial
Black Sea	143,000	44.25	28.47	200	300	2006	Winter	Good	SPA (100%)	Complete
Brates Lake	14,560	45.52	28.11	0	500	2006	Winter	Medium	SPA (26%)	None
Bratul Borcea	21,205	44.34	27.82	600	800	2006	Winter	Medium	SPA (62%)	Partial
Bugeac Lake	3,002	44.08	27.45	0	230	2006	Winter	Good	SPA (46%), Natural Reserve, SCI	Partial
Cheile Dobrogei	11,066	44.48	28.47	0	2,000	2006	Winter	Medium	SPA (99%), Natural Reserve of National Interest	Complete
Ciocanesti-Dunare	4,661	44.17	27.07	120	130	2006	Winter	Medium	SPA (8%), SCI	Partial
Danube Delta	515,454	45.18	29.35	7,000	24,000	2006	Winter	Good	Danube Delta Biosphere Reserve, Ramsar Site, UNESCO World Heritage Convention, SCI, SPA (100%)	Complete
Dunare-Ostroave	17,092	44.20	27.59	0	120	2006	Winter	Medium	SPA (98%), SCI, Natural Reserves Soimu, Ciocanesti and Haralambie	Partial
Dunareni Lake	1,004	44.19	27.77	200	300	2006	Winter	Good	SPA (100%), Natural Reserve	Complete
Fundata Lake	30,417	44.61	27.13	0	300	2006	Winter	Medium	SPA (21%)	Partial
Ianca-Popul-Sarat	30,417	45.16	27.63	0	600	2006	Winter	Medium	SPA (7%)	Partial
Iezerul Calarasi	30,417	44.21	27.27	1,000	5,200	2006	Winter	Good	SPA (100%)	Partial
Limanu-Herghelia	1,375	43.81	28.52	0	400	2006	Winter	Medium	SPA (29%)	Partial

International Site Name	IBA Area (ha)	Location		Population		Year	Season	Accuracy	Protected Area Name	Protection Status
		Lat	Long	Min	Max					
Maxineni	5,879	45.45	27.55	0	780	2006	Winter	Medium	SPA (26%)	Partial
Oltina Lake	3,199	44.16	27.64	700	1,200	2006	Winter	Medium	SPA (100%), Natural Reserve	Complete
Strachina Lake	5,172	44.68	27.58	600	700	2006	Winter	Medium	SPA (21%)	None
Tasaul Lake	5,951	44.36	28.59	0	260	2006	Winter	Good	SPA (45%)	Partial
Tataru	19,594	44.80	27.36	0	240	2006	Winter	Good	SPA (2%)	Partial
Techirghiol Lake	3,218	44.20	28.37	1	7,000	2006	Winter	Good	Ramsar Site, SPA (100%)	Complete
RUSSIA										
Dadynskiye Lakes	45,000	45.15	45.60	500	4,000	1996	Passage	Medium	Unknown	Unknown
Delta of the River Don	53,800	47.10	39.25	0	500	1997	Passage	Poor	Unknown	Unknown
Islands in the western part of Manych Lake	19,200	46.30	42.33	1,000	4,000	1997	Passage	Poor	Unknown	Unknown
Kazachka	4,000	47.45	49.50	150	200	1998	Passage	Good	Unknown	Unknown
Kissyk Area	250	43.44	46.40	20	80	1981	Passage	Medium	Unknown	Unknown
Kozinka lake and Baranikovski segment of Manych	9,600	46.34	42.00	2,000	10,000	2001	Passage	Unknown	Unknown	Unknown
Kulaksay lowland	5,000	50.44	55.50	0	2,430	1997	Passage	Medium	Unknown	Unknown
Kurnikov liman	1,600	46.25	43.12	7	400	1997	Passage	Good	Unknown	Unknown
Lysyi Liman Lake and valley of Vostochniy Manych river	6,000	45.48	44.50	0	5,000	2006	Passage	Medium	Unknown	Unknown
Manychstroï Area	16,000	45.57	43.57	0	500	2006	Passage	Medium	Unknown	Unknown
Moksha flood-plain in vicinity of Krasnoslobodsk	50,000	54.23	43.50	500	1,000	1998	Passage	Medium	Unknown	Unknown
Moksha valley in vicinity of Temnikov	28,000	54.40	43.32	500	1,000	1996	Passage	Poor	Unknown	Unknown

International Site Name	IBA Area (ha)	Location		Population		Year	Season	Accuracy	Protected Area Name	Protection Status
		Lat	Long	Min	Max					
Kulaksay lowland	5,000	50.44	55.50	0	2,430	1997	Passage	Medium	Unknown	Unknown
Novotroitskoye Reservoir	4,000	45.18	41.32	0	1,000	1999	Winter Passage	Medium	Unknown	Unknown
Ptich'ye Lake	5,000	45.35	41.45	0	200	1999	Passage	Medium	Unknown	Unknown
Sarpinskaya Lake-System	450,000	47.30	45.15	0	1,000	1999	Passage	Poor	Unknown	Unknown
Shalkaro-Zhetykol'ski Lake System	81,250	50.55	60.50	10,000	15,000	1996	Passage	Good	Unknown	Unknown
Southern part of Chograiski Reservoir	39,000	45.28	44.26	0	400	2006	Passage	Medium	Unknown	Unknown
Veselovskoye Reservoir	230,000	47.00	41.30	100	2,500	1990	Passage	Good	Unknown	Unknown
Vorono-Khoperski Area	22,000	51.4	42.35	800	1,000	1997	Passage	Good	Unknown	Unknown
TURKEY										
Saros Bay	41,680	40.38	26.50	0	180	1986	Winter	Poor	Unknown	Unknown
Terkos Basin	132,100	41.25	28.21	0	90	1995	Winter	Poor	Unknown	Unknown
UKRAINE										
Agriculture lands near Bilorets'ke (Chornozemne village)	17,000	46.11	34.31	150	300	1999	Passage	Unknown	Unknown	Unknown
Askania-Nova Biosphere Reserve	33,307	46.27	33.52	0	60	1996	Passage	Poor	Askania-Nova Biosphere Reserve	Complete
Chauda	56,000	45.12	35.55	0	2,400	1999	Passage	Unknown	Unknown	Unknown
Kakhovs'ke Reservoir (Energodar)	28,000	47.30	34.38	0	60	1999	Passage	Unknown	Unknown	Unknown
Karkhovs'ke Reservoir (Kozats'ki	1,000	46.50	33.30	8	60	1996	Passage	Medium	None	None

International Site Name	IBA Area (ha)	Location		Population		Year	Season	Accuracy	Protected Area Name	Protection Status
		Lat	Long	Min	Max					
island)										
Karkinits'ka and Dzharylgats'ka bays	87,000	45.58	33.12	0	520	1994	Winter	Good	Karkinitska and Dzharylgatchska Bays Ramsar Site	Partial
Khadzhybejs'kyi lyman	5,000	46.40	30.32	10	200	1999	Passage	Unknown	Unknown	Unknown
Kugurluj and Kartal lakes	19,200	45.17	28.39	0	1,000	1995	Winter	Good	Kugurlui Lake Ramsar Site, Kartal Lake Ramsar Site	Partial
Kytaj Lake	5,000	45.35	29.12	0	1,000	1999	Winter	Unknown	Unknown	Unknown
Shagany-Alibej-Burnas lake-system	19,200	45.47	30.00	0	2,500	1995	Winter	Unknown	Shagany-Alibei-Burnas Lakes System Ramsar Site	Complete
Snake island	17	45.15	30.12	20	200	1997	Passage	Medium	None	None
Yagorlyts'ka and Tendrivs'ka bays	72,000	46.2	31.50	500	2,500	1999	Passage	Unknown	Ramsar Site Yagorlytska Bay, Ramsar Site Tendrivska Bay, Black Sea Biosphere Reserve	Complete

ANNEX 3

Legal status, conservation actions, monitoring and site protection

Range state	BG	KZ	RO	RU	UA
Legal protection	yes	yes	yes	yes	yes
Is there a national action plan for RbG?	yes	no	yes ¹	no	no
Is there a national RbG project/working group	no	no	no	no	no
Is there a national survey programme?	yes	no	yes	partial	yes
Are protected areas surveyed?	partial	partial	partial	partial	partial
Percentage of national population occurring in IBAs	50–90%	50–90%	50–90%	50–90%	50–90%
Percentage of national population occurring on Ramsar sites	50–90%	-	50–90%	50–90%	50–90%
Percentage of national population occurring in areas protected by national law	50–90%	-	50–90%	50–90%	50–90%

1. Not approved by relevant national authority

ANNEX 4

Progress towards implementation of the 1995 International Action Plan

The international action plan produced in 1995 set out a series of objectives. Progress towards achieving these, as assessed by national experts, has been relatively poor (see table below) and none of the objectives has been fully achieved. Implementation in EU states has been consistently higher than in other range states, though progress in both Bulgaria and Romania was considered to be only marginally better than 50% implementation. Progress has been poorest in Kazakhstan, Russia and Ukraine, where weak law enforcement and the low priority afforded to biodiversity by national governments were identified as barriers to implementation.

Implementation of the 1995 Red-breasted Goose International Action Plan

The scores²⁶ below represent progress towards implementation against each objective of the action plan ('No' indicates the number of the action in the 1995 plan). Average implementation scores (AIS) are calculated for each action, as the average for all range states and for EU states. Overall implementation scores indicate implementation across all actions for each range state, taking into account the priority of each action.

²⁶ Implementation scores indicate progress towards achieving the target:

0: Action not needed/not relevant

1: Little or no work (0–10%) carried out, or piecemeal actions undertaken

2: Some work started (11–50%), but no significant progress

3: Significant progress (51–75%), but target still not reached

4: Action fully implemented, no further work required except continuation of ongoing work (e.g. monitoring)

blank: no information was available.

No	Objective	Priority	Azerbaijan	Bulgaria	Greece	Kazakhstan	Romania	Russian Federation	Turkmenistan	Ukraine	AIS in all sates	AIS in EU
1.1	Agricultural policies in wintering countries maintain favourable feeding conditions	4	3	1	2	0	2	3	0	1	2.0	1.7
1.2	RbG is fully protected and protection is enforced	4	2	2	4	2	3	2	1	3	2.4	3.0
1.2.1	The hunting season ends on 31 January in wintering countries	2	2	3	1	0	2	1	0	4	2.2	2.0
1.3	AEWA signed and ratified	3	1	4	4	1	4	1	1	4	2.5	4.0
2.1	Hunting bans established at all key sites and their buffer zones when RbG is present	4	1	2	4	2	2	2	2	1	2.0	2.7
2.1d	Poisoning prohibited at key sites	4	1	2	0	2	4	1	4	1	2.1	3.0
2.2.1	All internationally important sites are designated as protected areas	3	4	2	4		3	2	2		2.8	3.0
2.2.2	Development proposals likely to affect RbG and its habitat are subject to Environmental Impact Assessment	3	1	1	4	1	2	1	0	4	2.0	2.3
2.3	Use of rodenticides is controlled	2	1	2	0	1	4	1	0	1	1.7	3.0
2.4	Management of feeding habitat at staging and wintering areas	2	1	2	2	1	2	3	0	1	1.7	2.0
2.5	Specific inter-governmental agreement developed for conservation of RbG	3	1	1	1	1	1	1	0	1	1.0	1.0
3.1a	Population size and structure monitored annually on wintering grounds	4	3	3	4	2	3	2	1	4	2.8	3.3
3.1b/ 3.2.3	Distribution and numbers of breeding RbG monitored	4	0	0	0	0	0	2	0		2.0	0
3.2.1/ 3.2.2	All staging and wintering areas identified and monitored; their status and threats evaluated	4	4	4	4	3	3	1	4	1	3.0	3.7
3.3.1	Research on the relationship between spring fattening and breeding success undertaken	2	0	1	0	1	1	1	0	0	1.0	1.0
3.3.2	Research on feeding and behavioural ecology undertaken	2	0	2	3	1	1	2	0	1	1.7	2.0
3.3.3	Feeding ecology of breeding females studied	2	0	0	0	0	0	1	0	0	1.0	0
3.3.4	Changes in land use in wintering areas monitored	4	1	3	4	0	1	1	0	1	1.8	2.7
3.5	Effect of hunting (mortality and disturbance) assessed	3	1	3	3	1		1	1	1	1.6	3.0
3.6	Impact of the use of rodenticides understood	2	0	1	0	1	4	0	0	2	2.0	2.5
4.1.1	Public awareness on the importance of RbG increased	3	1	2	3	2		2	1	2	1.9	2.5

No	Objective	Priority	Azerbaijan	Bulgaria	Greece	Kazakhstan	Romania	Russian Federation	Turkmenistan	Ukraine	AIS in all sates	AIS in EU
4.1.2	Education/awareness programmes targeted at hunters, fishermen and farmers undertaken	3	1	2	3		3	1	1	3	2.0	2.7
4.2	RbG used as a flagship for habitat conservation	3	1	3	3		2	2	0	1	2.0	2.7
	Overall implementation score		1.6	2.3	3.2	1.6	2.5	1.6	1.8	1.9	2.0	2.7

A follow-up project (2008-09) funded by the Sir Peter Scott Fund aimed to ‘safeguard the feeding grounds of Red-breasted Goose in Romania through positive engagement and provision of assistance to local communities, especially farmers, to raise awareness and facilitate access to National Rural Development Programme funds for employing appropriate land management practices and environmentally friendly activities that support the conservation of Red-breasted Goose and other threatened species. Similarly in Bulgaria, agri-environmental measures relevant to the conservation of the feeding habitats have already been developed and introduced. For example, measures exist to improve food availability for wintering Red-breasted Geese and other waterbirds, and to reduce pesticide run-off into wetlands. At present, however, farmers know little about these measures.

In Chernye Zemlye Zapovednik (part of the Manych-Gudilo complex), the project ‘Agricultural habitat management for the conservation of globally threatened species of geese in Kalmykia, with the involvement of local communities’ (2008-09) was supported by the Netherlands Embassy. The Zapovednik, the Goose, Swan and Duck Study Group of Northern Eurasia, and the Russian Academy of Sciences Institute of Ecology and Evolution aimed to maintain suitable feeding conditions for Red-breasted Geese within safe sections of the Protected Area, by giving payments to farmers to maintain hay-meadows which creates suitable swards for staging geese, and improving patrols to reduce illegal hunting.

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