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CONVENTION ON THE CONSERVATION OF EUROPEAN WILDLIFE  
AND NATURAL HABITATS

**Standing Committee**  
21<sup>st</sup> meeting

Strasbourg, 26-30 November 2001

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**Possible new file**

**Afforestation of low land  
in Iceland**

**Report by the NGO**

*Document prepared by  
BirdLife International: Fuglaverndarfélag Íslands (Icelandic Society for the Protection of Birds,  
BirdLife in Iceland) and the Royal Society for the Protection of Birds (BirdLife in the UK)*

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## SUMMARY

The current Icelandic Government policy of subsidising the afforestation of the lowlands – with a target of at least 5% of this land being afforested by 2040, including 750-800 km<sup>2</sup> for timber production - is a major threat to about 20 bird species with Icelandic breeding, passage or wintering populations of outstanding international importance. For at least 12 of these species - all migratory waterfowl - Iceland holds the most important, or second most important European national breeding population. All these species rely on open ground habitat that is destroyed directly, or may be damaged by adjacent forestry or forestry in the same water catchment.

A total of XX% of this habitat is at risk if the Government afforestation policy continues as at present; indeed XX% has already been affected; some of the Icelandic Important Bird Areas are already considered threatened because of tree planting. If it continues unchecked the impact of the Icelandic afforestation policy could be evident in all the countries of Europe where the many affected Icelandic breeding bird species spend the winter, or stage, undermining conservation action in these countries. For example, all of the UK wintering population of Black-tailed Godwit and almost all the Greylag Geese are from Iceland.

The Icelandic afforestation policy of laws no. 32/1991, no. 93/1997 and no. 56/1999, in the view of BirdLife International, contravene Articles 2, 3, 4, 6 and 10.1 of the Convention. When they come up for review (around 2003) they should be amended accordingly. In the meantime the Icelandic government should refuse consent for any tree planting that risks damaging important populations of wildlife or important habitats.

## I AFFORESTATION IN ICELAND

At the time of human settlement of Iceland in the late 800s, birch wood/scrub is estimated to have covered about 20,000 km<sup>2</sup>, with total vegetation cover of around 40,000 km<sup>2</sup> (Thorarinsson 1974). Forest now covers 1300-1400 km<sup>2</sup> (1.3–1.4% of Iceland), 1200 km<sup>2</sup> of which is natural birch scrub/woods, the remaining 100-200 km<sup>2</sup> having been planted since 1899 (Eysteinnsson 2001), XX% of which since 1990. The potential area for arboriculture and forestry could be 24708 km<sup>2</sup> based on temperature data and figures for inland salt deposition (Jónsson, in press).

Following the first forestry and soil conservation laws which came into force in 1907 and the 1955 forestry laws which are currently in force, during the 1990s three new laws were introduced to enable the creation of woodlands for timber production, protection and care of the present woodlands and growing of hedges. All these forestry plans span 40 years and include the Government policy to

afforest 750-800 km<sup>2</sup> for timber production alone. The laws will all be reviewed after four years (ie 2003).

All three laws state how much lowland area should be covered with new forest in specific areas of Iceland: in law no. 32/1991 the area is up to 15,000 ha, in Fljótsháðsflói, East Iceland; in law no. 93/1997 the area is at least 15,000 ha for timber production, 10,000 km of hedges and 20,000 ha of so called "land improvement woodlands" in Suðurland (southern lowlands of Iceland); and law no. 56/1999 states that new woodland should cover at least 5% of the lowlands of Iceland. The Ministry of Agriculture will pay XX% of all costs (and receive 50% of profits 40 years after planting).

In addition, law no. 56/1999, section II states that the Minister of Agriculture shall ask for an environmental impact assessment before the initiation of the sectoral forestry programs. However, by April 2001 none of the sectoral forestry plans had been submitted or introduced to the Icelandic Planning Authority so EIAs of the forestry projects do not appear to be being carried out in practice.

This is despite Appendix 2 of the Icelandic Environmental Impact Assessment act (no. 106/2000) listing the following developments that might have considerable impacts on the environment: in section 1a, forestry, where the proposal covers an area larger than 20 ha and each case has to be evaluated on its merits; 1b, developments in uncultivated or relatively unspoiled land for intensive agriculture; 1d new forests of 200 ha or larger, or in conserved areas or ploughing of natural wood. Also section 2e of Appendix 3 refers to the need to survey areas protected under the Ramsar and Bern Conventions where they may be affected by the development.

Iceland is also involved with the so called Helsinki process that provides, for instance, guidelines for sustainable forest management.

The three new laws give no indication either as to what type of habitat or land should be planted or in what kind of habitat there should be no planting. While it appears that the proposed afforestation plans will not allow new drainage of wetlands for tree planting, much of it will be on land that was drained during the 1940s to 1980s when there were government incentives for such drainage (Eysteinnsson 2001). However, many of these wetlands in which drainage ditches have been dug retain much of their value as wetlands for birds (indeed, the Icelandic Society for the Protection of Birds one nature reserve is one of these 'drained' wetlands) and restoration should be considered in every proposed forest area before anything else<sup>1</sup>. In one forestry project at Skagafjörður, North Iceland, wetland restoration is proposed along with tree planting (Borgþór Magnússon pers. com.).

This new, large scale tree planting that has been introduced in the last decade is mainly of non-native trees, including e.g. Siberian Larch (*Larix sibirica*), Sitka Spruce (*Picea sitchensis*), Engelmann Spruce (*Picea engelmannii*), Alaskan Black Cottonwood/Western Balsam Poplar (*Populus trichocarpa*), Lodgepole Pine (*Pinus contorta*). In 1997, out of a total of 3,416,932 trees planted, the most common was Siberian Larch 1,281,228 (37.5%). White Birch<sup>2</sup> (*Betula pubescens*) is the only native tree to have been planted on a large scale: in 1997 around 873,772 (23.1%) were planted (Petursson 1998).

One of the reasons for the new Icelandic emphasis on afforestation is said to be the use of the new forests as a means of carbon sequestration. The plan is to increase annual sequestration from 1990 at the rate 1,000,00 tons per year with the increased forestry (Blöndal & Gunnarsson 1999). However, it is open to question whether the proposed afforestation will, on balance, contribute positively to sequestration (Bateman *et al.* 2000, Dickie & Rayment 2000).

<sup>1</sup> According to the Icelandic Nature Conservation act (no. 44/1999), article 37, wetlands of 3 ha should have special protection and any damage should be avoided. Lakes and pools 1000 m<sup>2</sup> or larger also have a special protection status. Very limited funds and efforts are currently put into wetland restoration in Iceland, even though it would be relatively easy in many areas. Only 10 sites (mainly pools) have been restored (<http://www.rala.is/votlendi/>), and their surface area is small.

<sup>2</sup> White Birch is the most common native tree species. Rowan (*Sorbus aucuparia*) and Aspen (*Populus tremula*) are the only other tree species native to Iceland, Rowan occurring sporadically in birch scrub/wood in most lowland areas of Iceland and native Aspen being rare (Kristinnsson 1986).

The forestry laws were introduced in agreement with the Farmers Union. Indeed the afforestation is receiving much public and political support in Iceland as it is being promoted as a contribution to restoring the damage – including soil erosion - which has been done to the Icelandic environment by overgrazing. In contrast, there is negligible public awareness of the phenomenal and unique importance of the Icelandic breeding waterfowl populations which are at risk from the forestry.

## II POTENTIAL IMPACTS OF CURRENT ICELANDIC AFFORESTATION POLICIES ON INTERNATIONALLY IMPORTANT BIRD POPULATIONS AND HABITATS

The prominent characteristic of Icelandic birdlife is the many waterfowl and wader species that breed in internationally important numbers. Iceland is of the highest European and indeed global conservation importance for many of these bird species and most of them breed at highest densities in the lowlands of Iceland. They rely on open landscapes.

Out of a total land area of 103,000 km<sup>2</sup>, it is estimated that the area of Iceland eligible for current Government subsidies for afforestation is about 24700 km<sup>2</sup>, this being the potential area suitable for arboriculture and forestry based on temperature data and figures for inland salt deposition (Jónsson, in press). Below the tree line (7.6°C) the area of heath, grassland and cultivated land is 18463 km<sup>2</sup>, moss heath is 6305 km<sup>2</sup> and wetland (including some that have been partially drained) is 6174 km<sup>2</sup> (Guðjónsson & Gíslason 1998). All but about XX km<sup>2</sup> of these habitats are of importance for Icelandic bird populations of international importance.

Only part of the country has been systematically surveyed for breeding birds. Bird atlases have been published for southwest Iceland and a limited part of the Northwest (Skarphéðinsson *et al.* 1994, Jóhannsson & Guðjónsdóttir 1995). Therefore detailed information on the birdlife of many of the proposed forestry areas is lacking.

However, the proposed afforestation of the Icelandic lowlands could have serious detrimental impacts on the populations of at least 7 species of migratory wader for which Iceland holds the most important, or second most important, European breeding population. This includes the entire *Limosa limosa islandica* subspecies of the Black-tailed Godwit, about 95% of the *Calidris alpina schinzii* subspecies of Dunlin, about 75% of the European population of Whimbrel (*Numenius phaeopus*) and around half of the European population of Golden Plover (*Pluvialis apricaria*) and Ringed Plover (*Charadrius hiaticula*).

Indeed the afforestation could potentially affect around 20 bird species for which Iceland has one of the five largest European breeding populations, exceeding 1% of the European breeding population (Table 1). All are listed on Appendix II or III of the Bern Convention. In addition to migratory waterfowl this includes the Gyr Falcon (*Falco rusticolus*) and its main prey, the Ptarmigan (*Lagopus mutus*).

As well as habitats for breeding birds the afforestation is likely to destroy the habitat for internationally important populations of birds on passage. For example, the entire population of the Greenland White-fronted Goose (*Anser albifrons flavirostris*) stages in lowland areas of Iceland from Snæfellsnes in the west to Skaftá in the east in spring and autumn (Fox *et al.* 1999, Einarsson, Ó. & Hilmarsson, J. Ó. pers. obs.). Marsh vegetation, which is an important source of food for this bird is already scarcer due to the large scale draining of the 20th century. Afforestation instead of restoration of the drained marshes in the south and west could further decrease available habitat for the Greenland White-fronted Goose. It is also very well documented that the Greenland White-fronted Goose is very site faithful (Wilson *et al.* 1991), and loss of staging areas could detrimentally affect the relevant flock using each area that would be afforested.

Iceland has 61 Important Bird Areas according to the criteria of BirdLife International. As many as 23 of these could be threatened by the proposed afforestation. It is already directly damaging two Important Bird Areas, Hrísey (north Iceland) and Úthérð (east Iceland; Einarsson 2000, Halldór W. Stefánsson pers. com.).

Afforestation of the open lowlands of Iceland causes a complete change in birdlife. In contrast to open habitats, there are very few birds species which breed in forests in Iceland. They include Wren (*Troglodytes troglodytes*), Redwing (*Turdus iliacus*), Redpoll (*Carduelis flammea*) and Goldcrest (*Regulus regulus*), the last one being a new breeding species. These are all of favourable conservation status and except for Redwing (Iceland holds 2-3% of the European population) they do not occur in internationally important numbers in Iceland (BirdLife International/EBCC 2000).

Birds respond to afforestation in different ways. Some, such as ptarmigan, may even increase during the early successional stages. Others may hold on for some years, but in reduced numbers while some, such as Dunlin, disappear quickly (Reed 1982). The main impact occurs when the young forest canopy closes over at the age of, say, 10-15 years; the habitat has then become completely unsuitable for open ground species. The loss is related to the area and quality of ground planted (Stroud *et al.* 1987).

In addition to direct loss of habitat, afforestation can affect birds over a much wider area due to habitat fragmentation and 'edge effects'. For example, the forests can act as a reservoir of predators that prey on the ground nesting birds in the surrounding area. In Scotland it was estimated that for species such as Merlin, the size of moorland islands in afforested areas needs to be larger than 270 ha to sustain a "healthy" population (Rankin & Taylor 1985).

Also, forestry in a water catchment can affect freshwater habitats as well as through physical changes, through nutrient enrichment (eutrophication), acidification and pesticide application. In addition it can dry up wetlands, particularly the ones that have been drained to some extent (Lindsey *et al.* 1996).

Furthermore, invasion by non-native species planted under subsidy is already happening. As well as tree species this includes the highly invasive plant, Nootka Lupin (*Lupinus nootkatensis*), that is frequently used in forestry and soil restoration efforts. Magnússon *et al.* 2001 showed that colonisation of Icelandic dwarf scrub heathland by Nootka Lupin causes the disappearance of most native species and they called for tight management guidelines in the use of Nootka Lupin. Some Important Bird Areas are threatened by this plant. Regulation no. 583/2000 on import, cultivation and distribution of foreign plants has been introduced partly to address this problem and refers to the Bern Convention and Convention on Biological Diversity for guidance.

The impact of afforestation in a place as important for biodiversity as Iceland, must be assessed at a long term and strategic level. A newly planted block of 200 ha of exotic conifers affecting only a couple of pairs of golden plover may not in itself appear a significant problem but the piecemeal effect of many such plantings and their wider indirect effects could amount to a major environmental disaster. The UK Government, which pursued a similar policy of subsidized afforestation during the 1980s, now acknowledges its disastrous impact on biodiversity and is investing in repairing the damage. Furthermore, the claims of socioeconomic benefits from the subsidization of forestry proved to be largely spurious, for example in the Flow country of Caithness and Sutherland in northern Scotland (Macmillan 1993, Dickie & Rayment 2000).

In Britain afforestation was recorded as a cause of population decline in six of the species that breed in Iceland: Wigeon (*Anas penelope*), Dunlin, Golden Plover, Snipe (*Gallinago gallinago*), Merlin and Raven. All these species occur in internationally important numbers in Iceland apart from Raven (2-3% of the European population of Merlin breed in Iceland).

In Caithness and Sutherland, in Scotland, the peatland vegetation was replaced with few plant species apart from the planted conifers and when the forest closes to thicket all ground vegetation disappears. Furthermore even aged plantations did not show the diversity found in natural woodlands (Stroud *et al.* 1987). Afforestation is likely to change completely the flora of forestry areas in Iceland as most of the plants of open habitats are unlikely to tolerate the profoundly different growing conditions of the forests. Therefore detailed vegetation surveys are needed to investigate if any rare or Red Listed species grow in the proposed forestry area.

### III CONFLICTS WITH THE CONVENTION'S REQUIREMENTS

The Icelandic afforestation policy of laws nos. 32/1991, 93/1997 and 56/1999, in the view of Birdlife International, contravene the following Articles of the Convention:-

Article 2 which requires Contracting Parties to 'take requisite measures to maintain the population of wild flora and fauna at, or adapt it to, a level which corresponds in particular to ecological, scientific and cultural requirements while taking account of economic and recreational requirements and the needs of sub-species, varieties or forms at risk locally'.

Article 3 which requires Contracting Parties to 'take the necessary steps to promote national policies for the conservation of wild flora, wild fauna and natural habitats, with particular attention to endangered and vulnerable species, especially endangered ones, and endangered habitats'.

Article 4.1 which stipulates that Contracting Parties 'shall take appropriate and necessary legislative and administrative measures to ensure the conservation of the habitats of the wild flora and fauna species, especially those listed in Appendices I and II, and the conservation of endangered natural habitats'.

Article 4.2 which stipulates that Contracting Parties 'in their planning and development policies shall have regard to the conservation requirements of the areas protected under the preceding paragraphs, so as to avoid or minimise as far as possible any deterioration of such areas'.

Article 4.3 which stipulates that the Contracting Parties 'undertake to give special attention to the protection of areas that are of importance for the migratory species specified in Appendices II and III, and which are appropriately situated in relation to migration routes, as wintering, staging, feeding, breeding or moulting areas'.

Article 6(b) which stipulates that Contracting Parties 'shall take appropriate and necessary legislative and administrative measures to ensure the special protection of the wild fauna species specified in Appendix II. The following will in particular be prohibited for these species:

(b) the deliberate damage to or destruction of breeding or resting sites'

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## APPENDIX

### Convention on the Conservation of European Wildlife and Natural Habitats

#### **Draft Recommendation No.... (adopted on ....November 2001) on the afforestation of the lowlands in Iceland**

**(Note from Secretariat: this draft recommendation needs to be supported by a Party to be discussed)**

The Standing Committee of the Convention on the Conservation of European wildlife and natural habitats, acting under the provisions of Article 14 of the Convention,

Having regard to the aims of the Convention, ie to conserve wild fauna and flora and their natural habitats;

Recalling that Article 2 provides that each Contracting Party shall take requisite measures to maintain the population of wild flora and fauna at, or adapt it to, a level which corresponds in particular to ecological, scientific and cultural requirements while taking account of economic and recreational requirements and the needs of sub-species, varieties or forms at risk locally;

Recalling that Article 3 of the Convention provides that each Contracting Party shall take the necessary steps to promote national policies for the conservation of wild flora, wild fauna and natural habitats, with particular attention to endangered and vulnerable species, especially endangered ones, and endangered habitats;

Recalling that Article 4.1 requires that each Contracting Party shall take appropriate and necessary legislative and administrative measures to ensure the conservation of the habitats of the wild flora and fauna species, especially those listed in Appendices I and II, and the conservation of endangered natural habitats;

Recalling that Article 4.2 requires that Contracting Parties in their planning and development policies shall have regard to the conservation requirements of the areas protected under the preceding paragraphs, so as to avoid or minimise as far as possible any deterioration of such areas.

Recalling that Article 4.3 provides that the Contracting Parties undertake to give special attention to the protection of areas that are of importance for the migratory species specified in Appendices II and III, and which are appropriately situated in relation to migration routes, as wintering, staging, feeding, breeding or moulting areas,

Recalling that Article 6 b provides that each Contracting Party shall take appropriate and necessary legislative and administrative measures to ensure the special protection of the wild fauna species specified in Appendix II. The following will in particular be prohibited for these species:

(b) the deliberate damage to or destruction of breeding or resting sites

Recommends that the government of Iceland:

1. ensures that the Ministry of Agriculture, under law no. 56, and the Ministry of Environment, under the environmental impact assessment regulations, fulfil their obligations to ensure proper environmental impact assessment of all relevant tree planting;
2. immediately refuses consent to any contracts for tree planting that risks damaging important populations of wildlife or important habitats;
3. when the laws are reviewed in 2003, amends its legislation to prohibit any tree planting on land regularly holding a significant part of the breeding, passage or wintering population of bird species that occur in Iceland in internationally important numbers; in particular there should be no planting within Important Bird Areas;



4. takes account of relevant experience from other countries ( including, for example, the UK ) on environmental impact assessments of afforestation and on repairing damage caused by subsidised afforestation;
5. reports to the Secretariat of the Convention within six months of the date of adoption of this Recommendation on the steps it has taken or proposes to take to act on it.

**TABLE 1 - Important Icelandic breeding populations of birds that could suffer from afforestation of land under 300m**

(species where Iceland holds at least 1% of the European breeding population and has one of the five largest European national populations)

Species	Bern Appendix	SPEC	European importance incl. Russia and Greenland (excluding Greenland)*	Icelandic popn trend 1970-1990*
<i>Gavia stellata</i> Red-throated diver	II	3	4 <sup>th</sup> – 1-2% (3 <sup>rd</sup> – 2%)	Stable
<i>Gavia immer</i> Great northern diver	II	non	2 <sup>nd</sup> – 13-60% (1 <sup>st</sup> – 100%)	Stable
<i>Podiceps auritus</i> Slavonian grebe	II	non	= 5 <sup>th</sup> – 0.3-2%	Decrease of 20-49%
<i>Cygnus cygnus</i> Whooper swan	II	4w	3 <sup>rd</sup> – 21-25%	Stable
<i>Anser anser</i> Greylag goose	III	non	1 <sup>st</sup> – 30-37%	Increase of 50%+
<i>Anas penelope</i> Wigeon	III	non	= 4 <sup>th</sup> – 2%	Fluctuating
<i>Athya marila</i> Scaup	III	3w	2 <sup>nd</sup> – 7-9%	Fluctuating
<i>Somateria mollissima</i> Eider	III	non	2 <sup>nd</sup> – 25-31%	Increase of 20-49%
<i>Mergus serrator</i> Red-breasted merganser	III	non	= 4 <sup>th</sup> – 3-4%	Fluctuating
<i>Charadrius hiaticula</i> Ringed plover	II	non	1 <sup>st</sup> – 31-42%	Stable
<i>Pluvialis apricaria</i> Golden plover	III	4	1 <sup>st</sup> – 42-58%	Stable
<i>Calidris alpina</i> Dunlin	II	3w	1 <sup>st</sup> – 21-61% (c95% of <i>schinzii</i> subspecies)	Stable
<i>Gallinago gallinago</i> Snipe	III	non	2 <sup>nd</sup> – 3-17%	Stable
<i>Limosa limosa</i> Black-tailed godwit	III	2	4 <sup>th</sup> – 4-5% (100% of <i>islandica</i> subspecies)	Stable
<i>Numenius phaeopus</i> Whimbrel	III	4	1 <sup>st</sup> – 63-77%	Stable
<i>Tringa totanus</i> Redshank	III	2	1 <sup>st</sup> – 19-30%	Stable
<i>Phalaropus lobatus</i> Red-necked phalarope	III	non	2 <sup>nd</sup> – 9-28%	Decrease of 20-49%
<i>Stercorarius parasiticus</i> Arctic skua	III	non	2 <sup>nd</sup> – 7-19%	Stable
<i>Falco rusticolus</i> Gyrfalcon	II	3	3 <sup>rd</sup> – 15%	Fluctuating
<i>Lagopus mutus</i> Ptarmigan	III	non	4 <sup>th</sup> – 1%	Fluctuating

SPEC = Species of European Conservation Concern. Species in category II and III have an Unfavourable Conservation Status in Europe (II = species whose global populations are concentrated in Europe and III = species whose global populations are not) (Tucker & Heath 1994 *Birds in Europe: their conservation status*)

\* data from BirdLife International/European Bird Census Council (2000) *European bird populations: estimates and trends*. Cambridge, UK: BirdLife International (BirdLife Conservation Series No. 10)