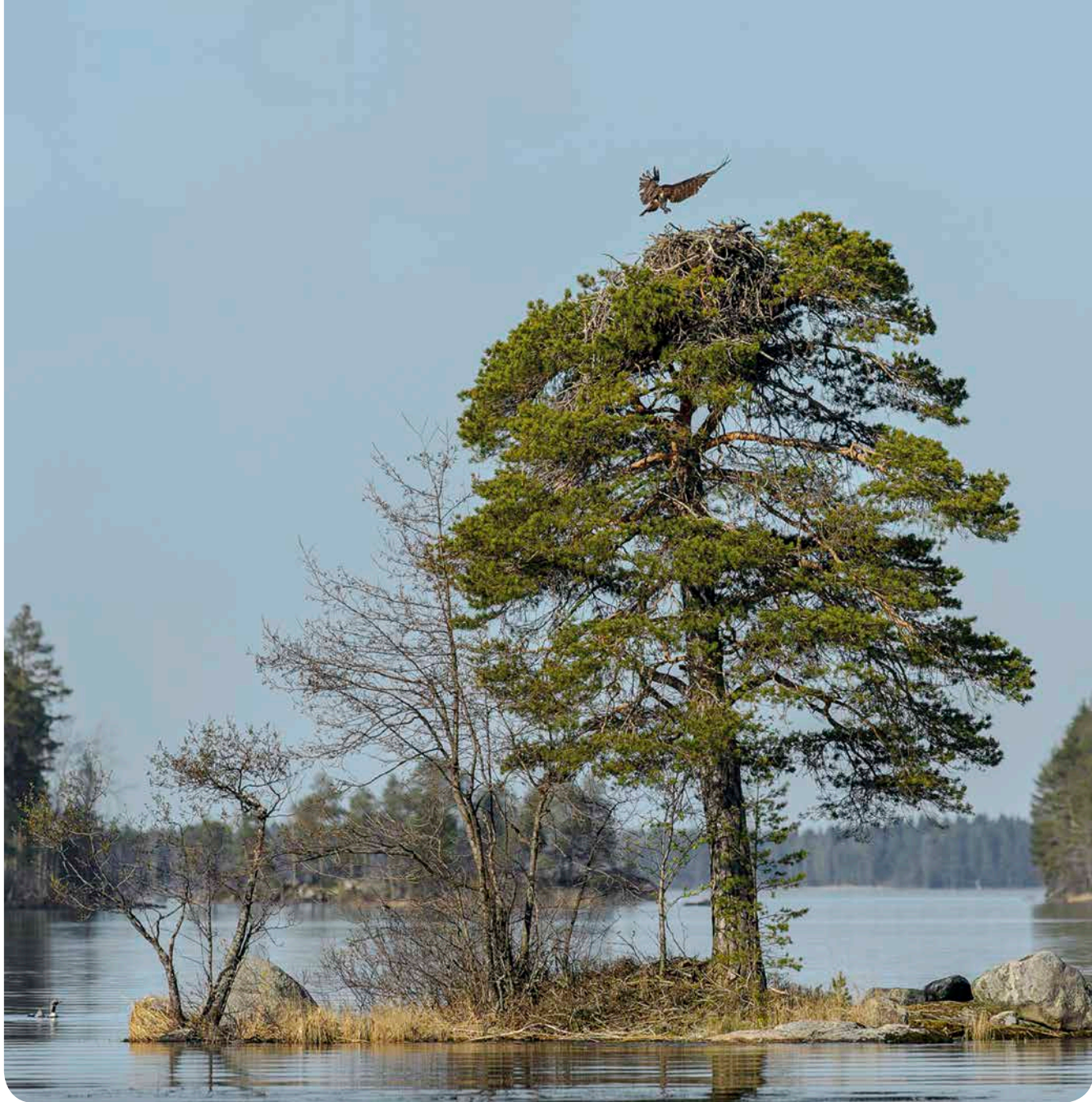




# The state of the birds in Finland





PERTTI RASP

ILKKA MARKKANEN

## The state of the birds in Finland

This report would not have been possible without the help of many organisations and birdwatchers. Special thanks to: the Finnish Museum of Natural History / Aleksi Lehikoinen, Metsähallitus, Parks & Wildlife Finland / Ari Rajasärkkä, ELY Centre for North Ostrobothnia / Jorma Pessa, South Karelian Ornithological Society / Hanna Aalto, Pori Ornithological Society / Askö Eriksson, Östra Nylands Fågel- och Naturskyddsförening / Martti Hario and the Finnish Environment Institute / Markku Mikkola-Roos.

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**Front-page picture:** Tengmalm's Owl chick, Heikki Ketola / Vastavalo



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## The birds have an important message to us

**Y**ou are currently reading the very first *The state of the birds in Finland* report. The report has been written because we all need to know how the Finnish birds are doing, and what kind of actions would help them.

This report is based on the data collected by volunteer birdwatchers. The excellent information we have about the Finnish bird populations and their changes is the result of countless hours the birdwatchers have spent in the field. In the hands of researchers, their sightings have been turned into population indices that help us understand what is happening in the bird world.

Most importantly, this report introduces the actions that can be taken to restore declining bird populations. Our hope is that these recommendations will be largely adopted. The hope of anyone interested in birds is that this information will turn into actions and decisions.

Unfortunately, we do not know the reasons for the changes for every species. The challenge ahead is therefore to gain a more profound understanding of the causes that have led to the decline of the birds. Are there some

factors yet unidentified that call for our intervention? Bird monitoring must be accompanied by more extensive studies investigating species-specific reasons for declines. This kind of research has been made in Finland less than in many other countries.

Even though birds are skilful singers, not all of the people can hear or understand their message. We must consider the birds and the nature in all of our actions. Let's spread this message together.

*Mika Asikainen*

**Mika Asikainen**  
Chair of the Board  
BirdLife Finland

**The breeding range of the Red-necked Phalarope has contracted towards the north, and the species has now been classified as Vulnerable in Finland.**





# The birds of Finland



PETTER TOLVANEN

About 250 species of birds and over 50 million pairs breed in Finland. The Willow Warbler and the Chaffinch are the most abundant breeding species: almost a third of the birds breeding in Finland are either of them. The breeding population of 12 species is estimated at more than a million pairs. On the other hand, the population of the 15 scarcest breeding birds is under ten pairs, and the population of 55 species under a thousand breeding pairs<sup>1</sup>.

Finland is an especially important area for many birds breeding in the boreal forests or peatlands. Many rare European species have a large breeding population in Finland: as much as 80 percent of Europe's Broad-billed Sandpipers and half of the Spotted Redshanks breed here. The situation is emphasized on EU level: there are over 40 species with at least a half of their EU population breeding in Finland<sup>2</sup>.

Bird populations change as their habitats and conditions change. Human activity has varying effects on the habitats and living conditions of birds. The intensification of agriculture and forestry, eutrophication of wetlands and the drainage of peatlands are the main reasons for population declines. On the other hand, reductions in toxic pollutants and hunting restrictions have saved many species from the brink of extinction. Global warming benefits birds with a southerly range while it makes life harder for northern species.

Most of the Finnish birds are migratory. The changes on their flyways and in the wintering areas also have an effect on them. Taking care of bird populations is therefore a common international responsibility that requires action along the entire migratory route.

## Winners and losers

The Yellow-breasted Bunting, which had a breeding population of a few hundred pairs at the most, has disappeared from Finland since the beginning of the 21st century. The last known breeding of the Lesser White-fronted Goose in Finland was recorded over 20 years ago. Species that have drastically decreased over the last decades and might disappear from Finland in the near future include the Ortolan Bunting, the Common Pochard and the Golden Oriole. These declines are caused by the changes both in Finland and elsewhere on their flyways.

Conservation work has helped many declined species to recover. Finland's national bird, the Whooper Swan, was saved due to the ban on hunting the species. The White-tailed Eagle, which was threatened with extinction because of toxic pollutants, is now considered a species of Least Concern, thanks to the uncontaminated food provided during winter and the bans on using environmental toxins. The White-backed Woodpecker population recovered after its most important breeding sites were protected with a conservation programme.

Several large birds which formerly suffered from overhunting have increased during the last decades. Many species with a southerly range, such as the Blackbird and the Blackcap, have also clearly increased due to global warming.

Ten entirely new breeding species have become established in Finland after 1980. The Barnacle Goose and the Cormorant have already long had populations counted in thousands of pairs, while the other new species (Pallid Harrier, Marsh Sandpiper, Little Crake, Bearded Tit, Citrine Wagtail, Savi's Warbler, Booted Warbler and Penduline Tit) still have small populations.

**The White-tailed Eagle, formerly on the brink of extinction, is now of Least Concern in Finland.**

**A significant proportion of many European bird populations breed in Finland<sup>3</sup>**

Species	Percentage of the population
Broad-billed Sandpiper	82%
Spotted Redshank	50%
Bar-tailed Godwit	47%
Black Grouse	42%
Wood Sandpiper	41%
Common Goldeneye	40%
Greenshank	40%
Capercaillie	37%
Little Gull	35%
Whooper Swan	33%
Red-breasted Merganser	33%
Eurasian Curlew	33%
Rustic Bunting	31%
Goosander	30%
Slavonian Grebe	29%

## The IBAs promote conservation

■ Important Bird and Biodiversity Areas (IBAs), a program developed by BirdLife International, has tremendously assisted the protection of birds and nature. The program includes the identification and designation of sites that meet the international IBA-criteria. The IBA-status has helped to stop several projects threatening biodiversity in developing countries that yet have an insufficient nature conserva-

tion legislation. In the EU, the selection of bird protection areas of the Natura 2000 network (SPAs) is largely based on IBA data. There are 100 IBAs in Finland.

**The Kirkkonummi archipelago IBA is a popular birdwatching site throughout the year. Due to milder winters, the importance of the Finnish IBAs for wintering waterbirds has increased.**



PETTERI TOLVANEN



PETRI VAINIO



MICHA FAGER



MICHA FAGER



PETRI VAINIO

**The Golden Oriole and the House Sparrow have rapidly decreased in Finland, while the Bearded Tit and the Blackbird have increased.**

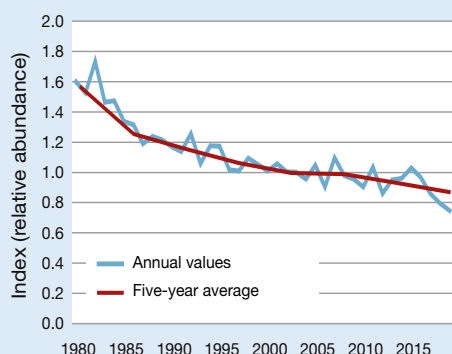
## What is a bird index?

■ The changes in bird populations tell of changes in their habitats. The abundance of a species depends on how well the requirements for its thriving are met. For example, the decrease in suitable breeding sites or food – such as insects – can be seen as a decreasing population.

The birds are a good indicator of the state of the environment because they are at the top of the food chain, they respond to changes rapidly, and the large-scale monitoring of their populations is easy and cost-efficient.

A simple and widely used indicator illustrating the state of a certain habitat uses index values which represent the combined changes in the populations of common species in the habitat<sup>4</sup>. For example, the indicator for the state of farmland shows the changes in the populations of 14 common farmland birds. The indicator does not include rare species because there are too little sightings to count reliable annual values for them.

**Population sizes naturally vary between years, and the single-year values are also affected by sampling error related to the monitoring methods. A graph based on five-year average values shows a clearer trend in the 14 common farmland bird populations than a graph illustrating the annual values.**



- 1 Lehtikoinen, A., Below, A., Jukarainen, A., Laaksonen, T., Lehtiniemi, T., Mikkola-Roos, M., Pessa, J., Rajasärkkä, A., Rusanen, P., Sirkiä, P., Tainen, J. & Valkama, J. 2019: Suomen lintujen pesimäkantojen koot. – Linnut-vuosikirja 2018: 38–45.
- 2 Birds Directive reports from 2018: <https://nature-art12.eionet.europa.eu/article12/>
- 3 BirdLife International 2017: European birds of conservation concern: populations, trends and national responsibilities Cambridge, UK: BirdLife International.
- 4 European Bird Census Council 2020: <https://pecbms.info/trends-and-indicators/indicators/>





# More and more birds are on the Red List

**T**he Red List is one of the most important ecological indicators. The status of Finnish birds has been assessed six times, most recently in 2019. The number of species on the Red List has increased each time. Currently, as much as half of the species breeding in Finland are on the Red List.

Most species on the Red List are birds breeding in wetlands, forests, fjell regions or farmland. The number of red-listed species has also increased in most of these habitats during the last decade. The main reasons that have led to the decline of the birds are the eutrophication of the wetlands, intensive agriculture and forestry as well as climate change.

Halting the decline of birds requires taking biodiversity into account in all activities. Three key measures to stop the decline,

which can also be quickly adopted, include the efficient management and restoration of wetlands, reinforcing nature- and environment-friendly actions in the common agricultural policy, and saving the habitats of the species requiring old-growth forest in forestry<sup>1</sup>.

Not all species on the Red List require conservation action. In addition to decreased species, the Red List includes species that are still rare in Finland, but are likely to increase with global warming, as well as some species that naturally have small populations. Therefore, the need for conservation measures must be assessed separately for each species.

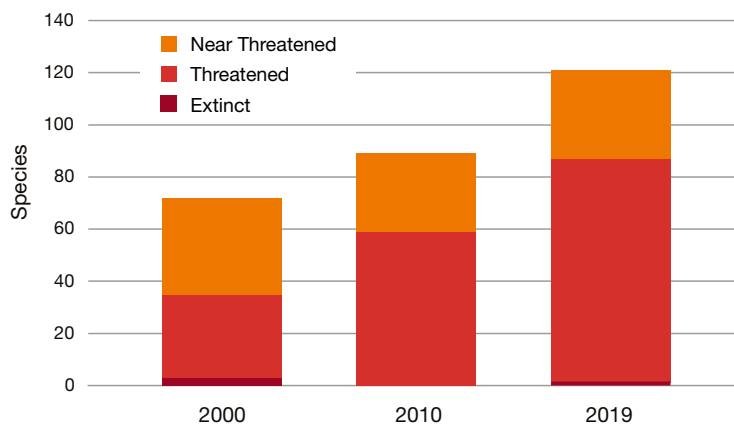
## Critically Endangered species in Finland

- Lesser White-fronted Goose
- Common Pochard
- Little Grebe
- Black Kite
- Montagu's Harrier
- Greater Spotted Eagle
- Gyr Falcon
- Ruff
- Little Stint
- Terek Sandpiper
- Great Snipe
- Black Tern
- Turtle Dove
- Snowy Owl
- Common Kingfisher
- Shore Lark
- Twite
- Ortolan Bunting



The Barn Swallow has greatly declined and it is classified as Vulnerable in Finland.

MICHA FAGER



The number of species on the Red List has increased from 72 to 121 in two decades.

## The extinction risk assessment and the Red List

■ The Red List is the result of assessing the extinction risk of the species. The species on the Red List have been assessed as Extinct, Threatened, Data Deficient or Near Threatened. The assessment is based on the criteria of the International Union for Conservation of Nature (IUCN)<sup>2</sup>. The extinction risk is mainly assessed based on the changes in the species' distribution and abundance. A species is the more threatened the more its population has decreased during the last three generations or at least over ten years, or the scarcer it is. The species in the highest category of risk, Critically Endangered, are at an im-

mediate risk of extinction. The species in the other categories of threatened species – Endangered and Vulnerable – have considerably decreased or are rare. Near Threatened species have noticeably decreased but do not completely fit the criteria for threatened species.

The assessment is based on recent changes. Therefore, the list may lack species that have substantially decreased in earlier decades and whose population has not recovered since. The criteria are only met if the decrease has been significant during the last three generations of the species.

The number of species on the Finnish Red List in the 2000, 2010 and 2019 assessments, according to their habitats. The class other includes e.g. urban environment and running waters.

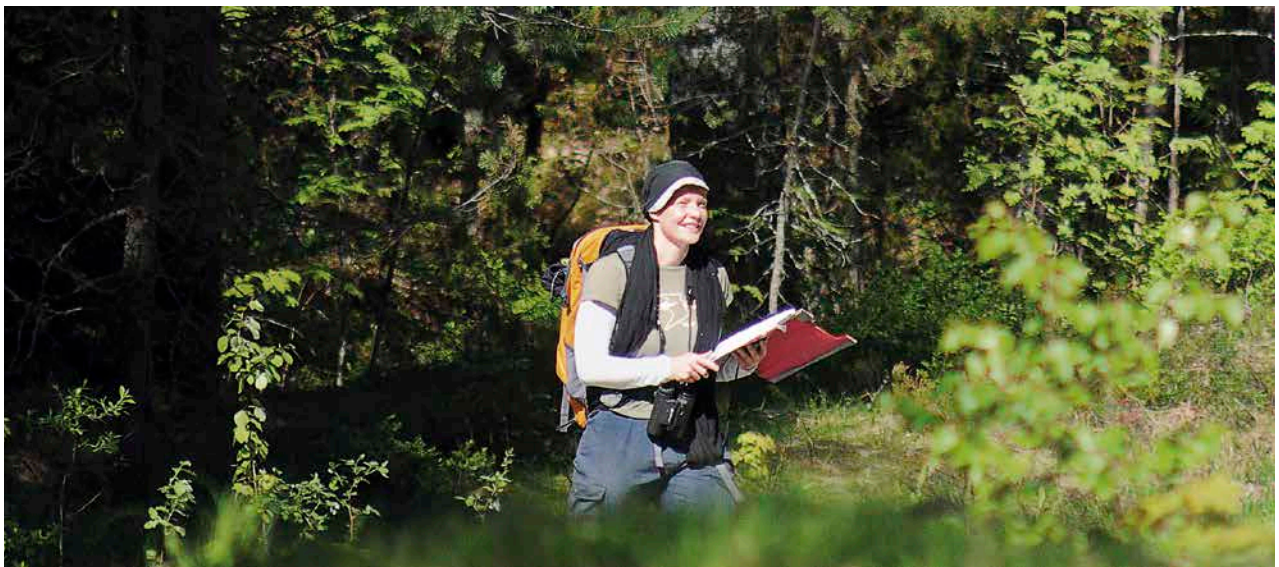
	2000	2010	2019
Wetlands	11	21	27
Oligotrophic lakes	3	5	3
Farmlands	13	9	19
Peatlands	5	8	12
Forests	21	16	22
Fjell regions	10	14	20
The Baltic Sea	6	9	10
Other	2	6	8



PERTTI RASP

The Gyr Falcon breeds only in the northernmost Lapland and is Critically Endangered in Finland.





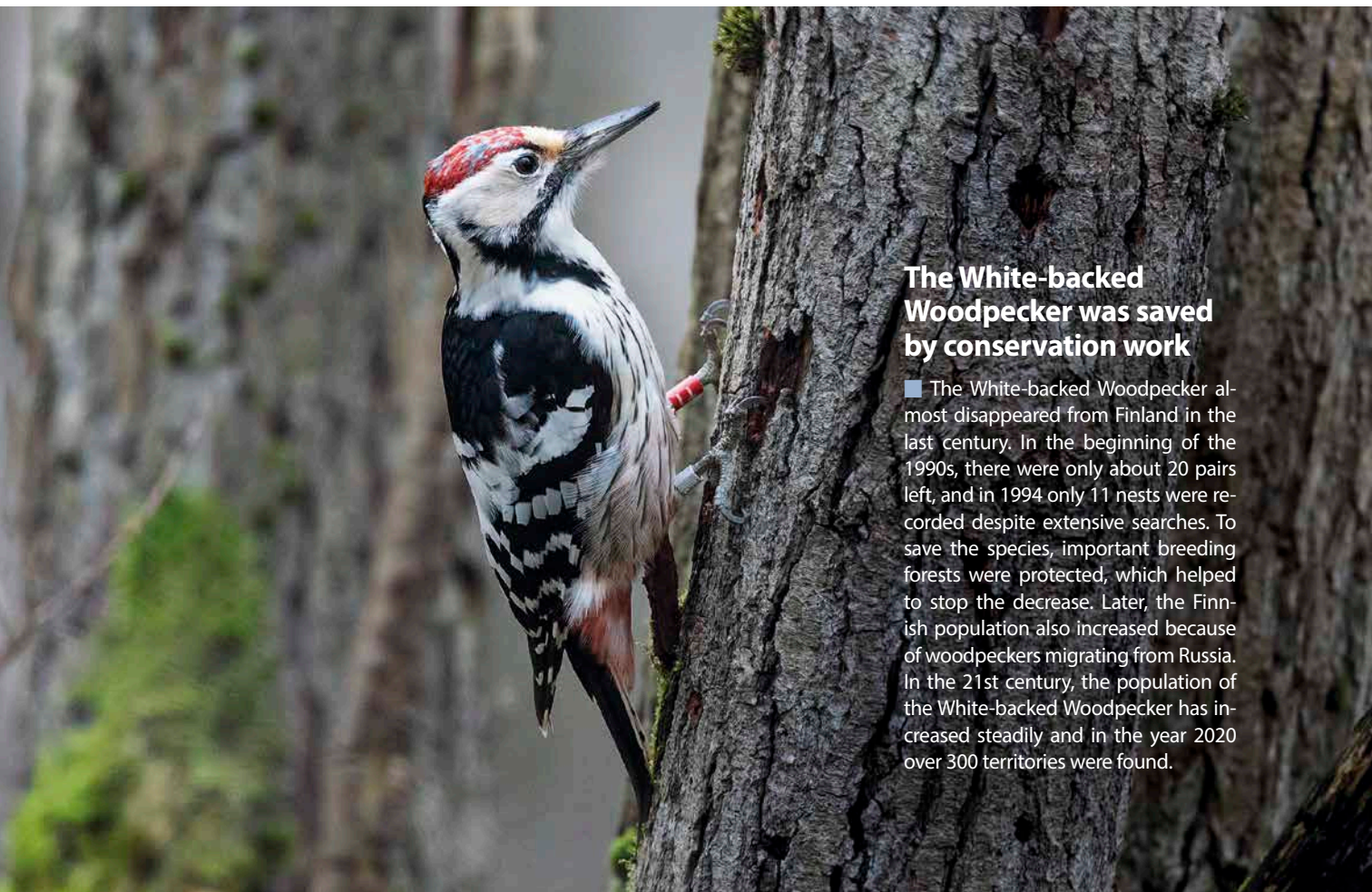
ALEKSI LEHIKONEN

## Bird population changes are well-known thanks to monitoring

■ The birds are the best known taxon group in Finland. Their population changes are known thanks to thousands of birdwatchers. The line transects counted in the summer show the changes in Finland's breeding populations, while the winter bird counts reveal changes in the wintering populations. In addition, surveys on certain habitats, species groups or areas are conducted yearly. The major-

ity of the bird monitoring is coordinated by the Finnish Museum of Natural History (Luomus) together with BirdLife Finland. Regional ornithological societies and BirdLife Finland also monitor population changes in the important bird areas. Finnish authorities also have their own monitoring programs, such as the bird inventories in the conservation areas managed by Metsähallitus, Parks & Wildlife Finland.

All bird sightings are important. Accurately reported records reveal e.g. the timing of migration and the changes in the numbers of migrating birds and scarce species. The results of the bird monitoring are used e.g. in the Red List assessment and to evaluate the effects of human activity on nature.



### The White-backed Woodpecker was saved by conservation work

■ The White-backed Woodpecker almost disappeared from Finland in the last century. In the beginning of the 1990s, there were only about 20 pairs left, and in 1994 only 11 nests were recorded despite extensive searches. To save the species, important breeding forests were protected, which helped to stop the decrease. Later, the Finnish population also increased because of woodpeckers migrating from Russia. In the 21st century, the population of the White-backed Woodpecker has increased steadily and in the year 2020 over 300 territories were found.

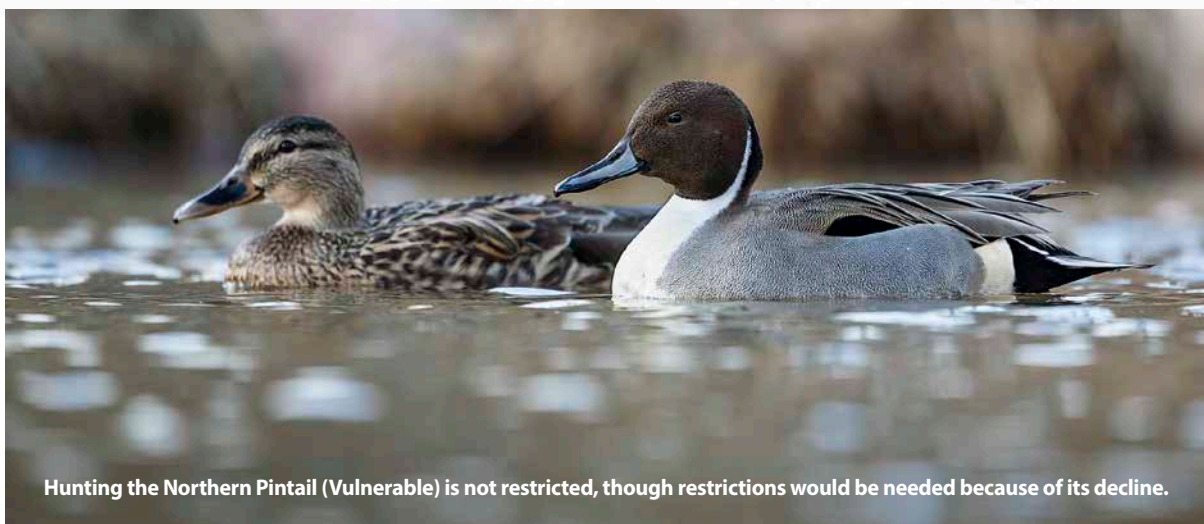


## A considerably decreased species is not always on the Red List

■ The Capercaillie is not endangered in Finland, even if its population has decreased by over a half after the 1960s and its range has contracted in southern Finland. In the Red List assessment, only the last three generations of the population – 20 years for the Capercaillie – are considered, and the former decrease is not taken into account. In the 21st century, the population has been stable, and the species is thus considered of Least Concern. Even though the Capercaillie is now rare in the southernmost Finland, it is still a common bird in most of the country.



MIA RÖNKA



Hunting the Northern Pintail (Vulnerable) is not restricted, though restrictions would be needed because of its decline.

MICHA FAGER

## Game waterfowl on the Red List

■ The populations of game birds, especially ducks, have significantly decreased in Finland during this millennium. Of the 17 Finnish game waterfowl species, only one was red-listed in 2000, but eight in 2010 and 11 in 2019. Hunting restrictions are the simplest way to help the gamebirds on the Red List because the additional

mortality caused by hunting is harmful for the decreasing population. Because of that, the population may not be able to recover even after a good breeding year. The hunting of the decreased species must be restricted for a period that is long enough to allow the populations to recover.

- 1 Tiainen, J., Lehtiniemi, T., Lehtikainen, A., Jukarainen, A., Mikkola-Roos, M., Below, A., Pessa, J., Rajasärkkä, A., Rintala, J., Rusanen, P., Sirkiä, P. & Valkama, J. 2019: Suomen lintujen uhanalaisuus 2019. – Linnut vuosikirja 2018: 14–25.
- 2 IUCN 2019: Guidelines for Using the IUCN Red List Categories and Criteria.





# Bird-rich wetlands overgrow – waterbirds are decreasing

**T**he bird-rich wetlands of Finland – shallow lakes with diverse vegetation, sea bays and estuaries – host the richest bird populations and are also popular bird-watching sites. However, these sites have greatly changed in the last decades. Coastal meadows have overgrown, the structure of aquatic vegetation has simplified and open water areas have reduced in size. Nutrient load has changed the fish populations of the wetlands and also affected the invertebrate populations that provide important food for the waterbirds.

Wetlands are the primary habitat for about 40 bird species, such as ducks and waders. Over 60 percent of the species breeding on wetlands are on the Red List. The population development of many waterbirds is alarming in Finland: e.g. the Common Pochard, once one of the most abundant species in the Finnish wetlands, is now Critically Endangered.

The Slavonian Grebe, classified as Endangered, has also almost disappeared from the wetlands, yet it still thrives in the inner archipelago of the Baltic Sea<sup>1</sup>.

The waterbird decrease is mainly caused by excessive eutrophication and overgrowth. The competition for many diving ducks' principal food – aquatic invertebrates – has increased<sup>2</sup> because the cyprinid fish have increased due to the eutrophication. The open water areas that are important to diving ducks have diminished, and the mosaic-like structure of aquatic vegetation has vanished in many sites. Invasive alien predators – the American mink and the raccoon dog – have probably affected the breeding success of the waterbirds, and together with the overgrowth they have led to the demise of the gull colonies from the wetlands. Gull colonies offer important protection for breeding waterbirds.

**The Lake Puurijärvi in Kokemäki is one of the most bird-rich wetlands in Finland. Its bird populations have greatly benefited from extensive restoration actions.**

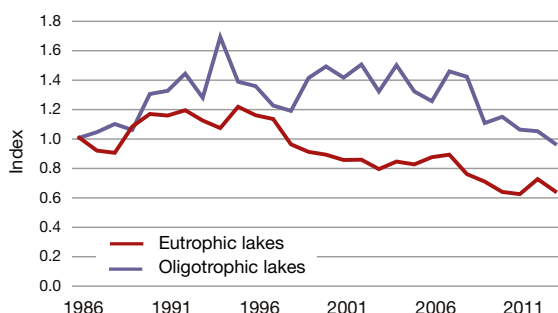




The Black-throated Diver, which favours oligotrophic lakes, has increased in Finland.

## Waterfowl have survived better in the oligotrophic lakes than in the bird-rich wetlands

■ The waterfowl populations of the bird-rich wetlands have roughly halved from the mid-1990s. However, the development of the populations of birds favouring oligotrophic lakes has been more positive<sup>3</sup>. E.g., the fish-eating Black-throated Diver has clearly increased in Finland during the 2000s. The Common Goldeneye and other birds thriving in many kinds of wetlands have also fared better than the species specialised in eutrophic wetlands<sup>3</sup>.

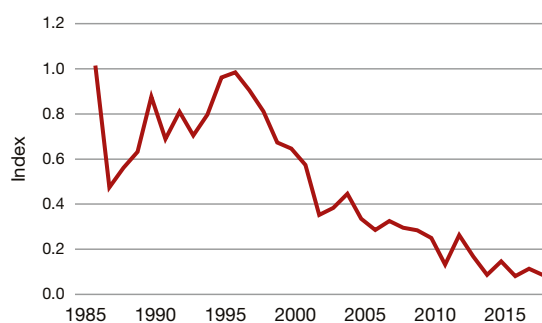


**According to the national waterbird counts, waterfowl populations have differing trends in oligotrophic and eutrophic wetlands.**

Data: Luomus and the Natural Resources Institute Finland.



MICHA FÄGER



**The Common Pochard population has collapsed in Finland.** Data: national waterbird counts 1986–2018 / Luomus and the Natural Resources Institute Finland.

## Common Pochard is declining throughout Europe

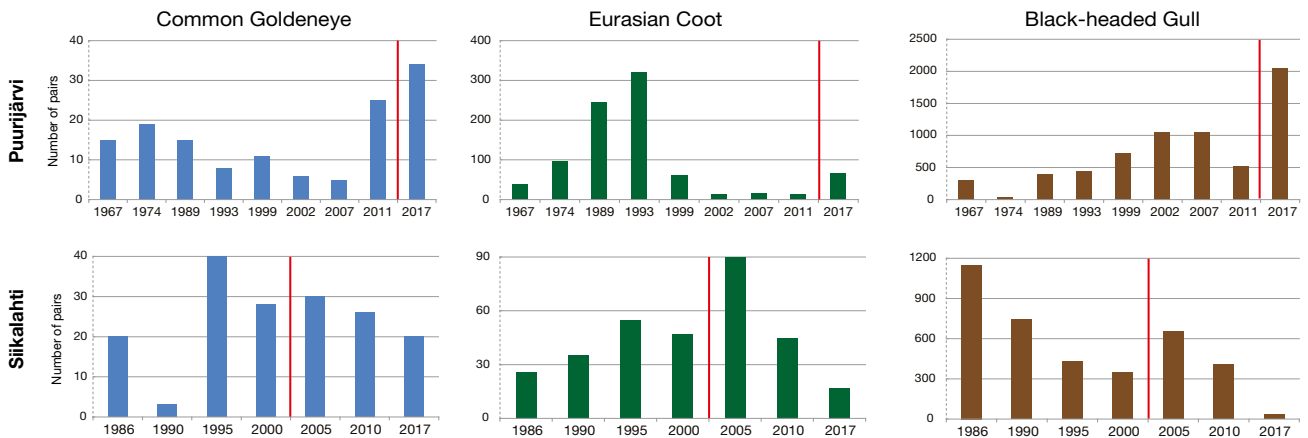
■ The decline of the Critically Endangered Common Pochard probably began already in the 1970s, but the Finnish breeding population was still estimated at over 10 000 pairs in the 1990s. Since that, the population has decreased by as much as 90 percent. In the Bird of the Year project of BirdLife Finland in 2018, the population of Common Pochard in Finland was

estimated at only 600–750 pairs<sup>4</sup>. The species has decreased at an alarming rate in its entire range, and it is now classified as Vulnerable in Europe and worldwide.

The decrease of the Common Pochard is probably caused by the excessive eutrophication of wetlands. The eutrophication leads to the decline of submerged flora important to diving ducks and benefits the cyprinid

fish that compete for food with the birds. The Common Pochard prefers to nest within the gull colonies, so the demise of the Black-headed Gull from wetlands has been detrimental. Invasive alien predators have probably reduced the Common Pochard's breeding success, and hunting of the species in its wintering areas in Western Europe may also have steepened the decline.





The restoration actions conducted at Lake Puurijärvi in the early 2010s helped the Eurasian Coot population to recover and led to an increase in the Black-headed Gull colony. On the contrary, the last restoration actions at Siikalahti bay date back to the early 2000s. After a temporary rise, the populations of the two above-mentioned species have since decreased. The population development of the Common Goldeneye, which thrives in many kinds of wetlands, has been more stable. The red line indicates the time of the latest restoration. Data: Metsähallitus, Parks & Wildlife Finland.

## Wetland restoration helps the waterbirds

Waterbirds can be helped by restoring their habitats. For example, dredging, elevating the water level with a submerged weir, cutting reedbeds or keeping shores open with grazing cattle as well as intensive fishing have led to the recovery of the waterbird populations. Studies have shown that the Common Pochard, among others, has benefited from the mass removal of cyprinid fish<sup>5</sup>. The restoration measures still need to be chosen according to the habitat and species group in

question. In coastal bays, grazing that keeps the meadows sparsely vegetated to the shoreline is often the most efficient action<sup>6</sup>. In inland wetlands, it is often necessary to expand open water areas.

For example, at Lake Puurijärvi in western Finland, the extensive restoration measures have recently helped both the waterfowl and the Black-headed Gull. However, the wetlands need constant management because the restoration does not stop eutrophication or over-

growth. At the Siikalahti bay in south-eastern Finland, the bird populations increased after dredging and other restoration measures but decreased again because the management was not continued. In recent years, the breeding population of the Black-headed Gull at Siikalahti has gone down to a few dozen pairs, and two formerly abundant breeding species, the Common Pochard and the Slavonian Grebe, have almost disappeared from the area.

### What can we do?

Waterbird habitats need to be restored and managed. Management plans for the wetlands must be compiled and permanent funding for restoration actions should be ensured. Measures that decrease the competition for food such as intensive removal of cyprinid fish have to be increased and grazing in the coastal areas important to birds needs to be encouraged so that the shores remain open. Artificial islands favoured by gulls and other waterbirds are also worth constructing: so far few have been built but based on the experience, they can significantly improve the birds' breeding success. At the managed sites, the breeding success of birds could also be improved by mass removal of invasive alien predators.

In the long run, the state and the need for management of wetlands depends on the nutrient load coming from the catchment basins. Limiting nutrient discharges from both agriculture and forestry plays a key role in improving the state of the wetlands.

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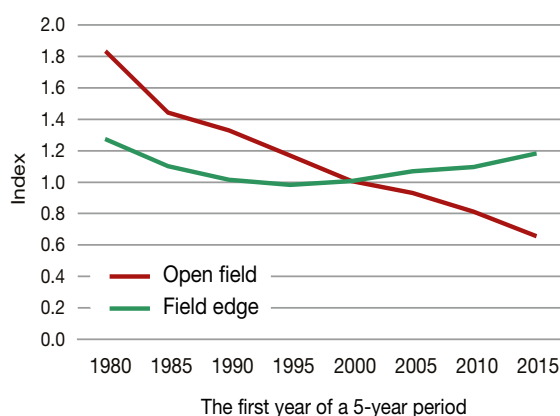
# Farmland birds suffer from intensive agriculture



**N**early one tenth of Finland's land area consists of agricultural area. The patchy landscape formed by fields, uncultivated land and farm houses provides breeding sites for many bird species. About 40 species breed primarily in agricultural environment, which is also an important foraging area for tens of other bird species during the migratory season. Of the species breeding in agricultural environment, 19 were red-listed in 2019, which was 10 more than in 2010.

Agriculture has greatly changed over the last decades. The farm and field sizes have grown, the production has intensified, and the different types of agriculture have concentrated to certain regions. Thus, the agricultural landscape has become less diverse. The birds have suffered from the intensified harvesting of fodder and the decrease of areas covered by vegetation in winter, open ditches, uncultivated patches and grasslands. Especially grasslands have decreased rapidly: the pasture areas were halved between 2010 and 2018, even if the livestock numbers stayed nearly the same. Currently, nearly a third of the cattle do not get to pasture at all, and more than a fifth live inside all year round<sup>1</sup>.

Farmland bird populations have on average nearly halved since the beginning of the 1980s. The decrease has slowed down but still continued in the 21st century. The decrease has been particularly steep among the birds that both breed and feed on fields. These species have decreased on average about 65 percent from the beginning of the 1980s and over a third during this century. The species which do not breed on the open fields but use them for feeding have survived the changes better.



**The intensification of agriculture has changed the landscape and the bird populations in Finland. The collapse of the Common Starling population provoked discussion already in the 1970s.**

**The abundance of common farmland birds has nearly halved after the 1980s. Especially the species breeding on open fields have decreased, while the species living on field edge habitats have not declined<sup>2</sup>. Data: Luomus.**





## Insects and insectivores have decreased

■ Only in the 2010s has Europe become aware of the collapse of insect populations and the decrease of pollinators<sup>3</sup>. Such monitoring data we have on birds does not exist for the insect populations. In Finland as in the wider Europe, the population changes in birds have long suggested the decrease in the number of insects, because many farmland insectivorous birds have long been declining. For example, all of the swallows that depend on insects have already been assessed as Threatened in Finland. It is assumed that the decline in insect populations is caused by the intensification of agriculture – especially the use of pesticides.



MICHA FAGER

**The House Martin, which builds its nest in man-made structures and eats flying insects, has decreased rapidly in Finland.**



## Protection helped the Common Kestrel

■ A Common Kestrel hovering over a field, looking for prey, used to be a typical sight in farmlands. The species' population crashed in the 1970s, probably due to the pesticides accumulated at the top of the food chain. Nowadays the Common Kestrel is common again in Finnish fields. The population recovery has been assisted by prohibiting the use of the most harmful environmental toxins, as well as by the large number of nest boxes built by birdwatchers. The boxes mounted on barn walls provide a safe breeding site for Common Kestrels.





PERTTI RASPP

## The Ortolan Bunting has decreased due to intensified agriculture

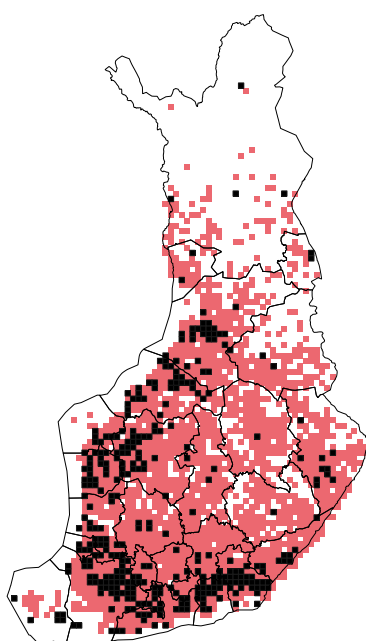
■ The Ortolan Bunting has decreased more than any other bird species in Finland: over the past 30 years its population has diminished by as much as 99 percent. The population once comprising hundreds of thousands of pairs has been reduced to a few thousand, and the species has already disappeared from large parts of its previous range in Finland.

It was long assumed that the reasons for the decline of the Ortolan Bunting were solely outside Finland because the species winters in Africa and it has been hunted during migration in countries such as France. However, according to recent studies, the main reasons for the decrease most likely are the changes in the breeding areas. The Ortolan Bunting population of Finland does not migrate through the hunting areas in significant numbers, yet the studies indicate lowered reproduction rates in the breeding areas<sup>4</sup>.

**The range of the Ortolan Bunting in Finland has decreased considerably. Red squares represent the 100 square kilometre areas where the Ortolan Bunting was observed during the first two bird atlas surveys (1974–1979 and 1986–1989), and black squares represent the areas where it was observed during the breeding period in 2017–2020. In 2020, the current distribution of the Ortolan Bunting was extensively studied in BirdLife Finland's Bird of the Year project. Data: BirdLife Finland / Tiira observation database 2017–2020, Luomus / Bird Atlas.**

The underlying causes for the lowered breeding success include intensive agriculture, particularly the loss of farmland diversity – the reduction of open ditches, headland, and small uncultivated patches. Insecticides like neonicotinoids can also be an important factor in the decline of Ortolan Buntings and other farmland birds. Research on North American buntings suggests that neonicotinoids affect the birds' orientation and increase mortality even in small doses<sup>5</sup>.

To save the Finnish Ortolan Bunting population, it is crucial to maintain breeding success in those areas where the species is still found. This calls for taking the species' living requirements into account in agriculture.



### What can we do?

To stop the decline of the farmland birds, the birds must be taken into greater consideration in agriculture. Organic farming benefits the birds<sup>6</sup>, but their living conditions can be improved in all kinds of farming.

Cattle grazing on grassland keeps it rich in insect species, which provides necessary food for the birds especially during breeding season. Areas that are not in intensive use, such as sparsely vegetated fallow lands located within large fields, are particularly important to the birds and need to be increased. The small trees and bushes along ditches and rivers that offer necessary foraging and breeding sites to the birds<sup>7</sup> need to be preserved. The use of harmful pesticides needs to be limited. Keeping the fields covered with vegetation in winter and favouring winter-hardy herbaceous plants along ditch edges help the birds survive winter. Practices that decrease nest and chick losses during harvesting and spring sowing also need to be developed.

In agricultural policy, cultivation methods that provide environmental benefits need to be supported, and subsidies must be removed from environmentally harmful farming measures.

- 1 Ruokatieto Yhdistys ry (Finfood – Finnish Food Information) 2020. [www.ruokatieto.fi](http://www.ruokatieto.fi)
- 2 [www.luonnontila.fi](http://www.luonnontila.fi)
- 3 Hallmann C. A., Sorg M., Jongejans E., Siepel H., Hofland N., Schwan H. et al. 2017: More than 75 percent decline over 27 years in total flying insect biomass in protected areas. – *PLoS ONE* 12(10): e0185809.
- 4 Piha, M. & Seimola, T. 2021. Manuscript.
- 5 Eng, M. L., Stutchbury, B. J. M., & Morrissey, C. A. 2019: A neonicotinoid insecticide reduces fueling and delays migration in songbirds. – *Science*, 365(6458): 1177–1180.
- 6 Santangeli, A., Lehtikoinen, A., Lindholm, T. & Herzon, I. 2019: Organic animal farming increase farmland bird abundance in the Boreal region. – *PLoS ONE* 14(5): e0216009
- 7 Ekroos, J., Tainen, J., Seimola, T. & Herzon, I. 2019: Weak effects of farming practices corresponding to agricultural greening measures on farmland bird diversity in boreal landscapes. *Landscape Ecology*, 34 p.389–402.



# Peatland birds decline

## due to drainage, peat production and climate change

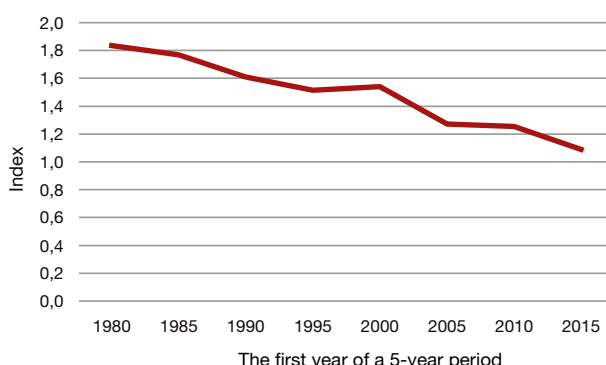


The Ruff has disappeared from many peatlands and is classified as Critically Endangered.

A third of Finland's surface area was originally peatland. More than half of the peatlands have been drained after the mid-20th century mainly for forestry. Though new drainages have been minor in recent years, the remaining ditches still degrade the peatland habitats and also drain the peatlands that are still in natural state.

Peatland is a primary habitat for about 20 bird species. Over a half of them, 12 species, are on the Finnish Red List. Peatland bird populations have as much as halved in Finland since the beginning of the 1980s. The Ruff, formerly a common peatland bird, is nowadays Critically Endangered: as much as 95 percent of Finland's Ruffs have disappeared in a few decades<sup>1</sup>. Many other species typical of the peatlands of northern Finland, such as the Broad-billed Sandpiper, the Spotted Redshank and the Red-necked Phalarope, are also decreasing and their distribution is contracting towards the north.

The decrease of peatland birds is caused especially by drainage<sup>2</sup> and climate change, but peat production has also destroyed many important peatlands. The changes in the wintering and staging areas may also have influenced e.g. the Ruff's decline. The Ruffs mainly winter in West Africa where the hunting pressure is high especially in periods of drought when wetlands are small.



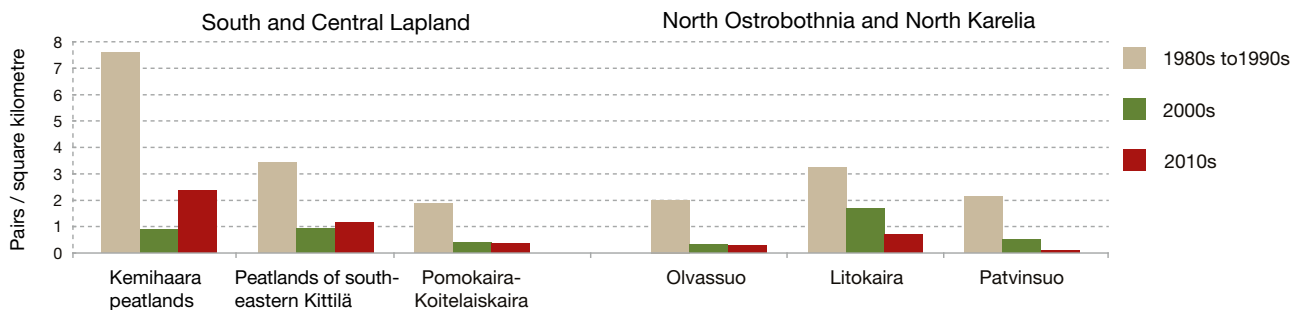
The indicator for common peatland birds shows that the birds are decreasing. Data: Luomus.



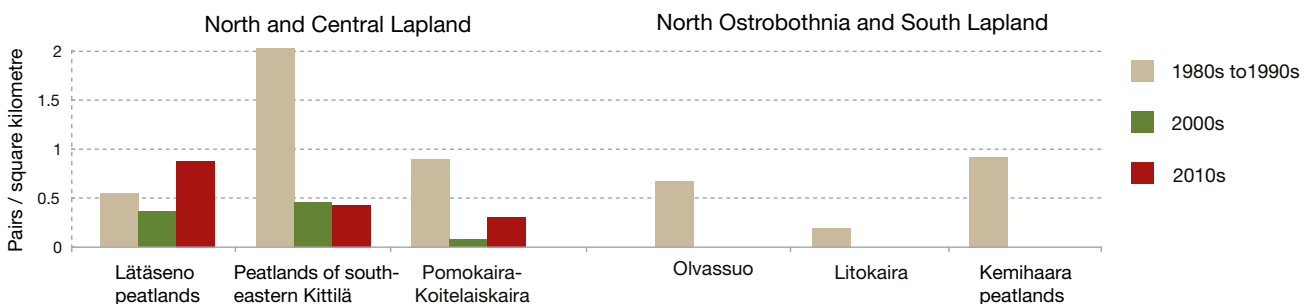
## Peatland birds also decrease in the Finnish IBAs

■ The decline of the peatland birds is one of the biggest changes in Finland's IBAs (Important Bird and Biodiversity Areas). Over the last three decades, e.g. the Broad-billed Sandpiper and the Spotted Redshank have almost disappeared from many southern IBAs, and the breeding populations of the Rustic Bunting and the Ruff have declined to a fraction of what they used to be in most of

the IBAs. The decline of these species was especially rapid at the end of the last millennium. Since then, the Ruff has even increased in northern IBAs, but seems to have permanently vanished from the southern parts of its former range. The national population of the Rustic Bunting has been stable in the 2000s<sup>1</sup> but based on the inventories the species has still decreased in many IBAs.



**The Rustic Bunting decreased significantly at the end of the last millennium. The development has stabilised in the 2000s, but the decline has continued especially in the southern IBAs.** Data: BirdLife Finland and Metsähallitus, Parks & Wildlife Finland.



**The Ruff population collapsed in most IBAs by the 2000s. Some recovery can be seen mainly in northern Finland. The southern IBAs, however, seem to have lost their Ruffs permanently.** Data: BirdLife Finland and Metsähallitus, Parks & Wildlife Finland.

## Southern peatlands are losing their birds

■ In southern Finland, nearly 80 percent of peatlands have been drained, and peatland birds have little room for living outside the few nature reserves. Peat production has concentrated in the few peatlands that have still remained in their natural state, accelerating the decline of the birds. The remaining, scattered nature reserves are not sufficient to maintain viable populations, which can be

seen in the decrease of peatland birds even in the protected areas.

During the last decades, the Wood Sandpiper population of southern Finland has decreased by one third<sup>2</sup>, and the Yellow Wagtail has nearly disappeared from many of the southern regions of Finland. The Golden Plover, the Green-shank and the Meadow Pipit are also classified as regionally threatened in some areas.

### What can we do?

To halt the decline of the peatland birds, a wide range of actions from limiting climate change to restoring peatlands is needed. The important peatlands that have drained need to be restored, and the effect of the drainage on the remaining natural peatlands needs to be stopped. This can be done e.g. by directing the waters of the drainage ditches to the natural peatlands. Peat production has to be stopped and the production during the transition period needs to be directed to peatlands with little importance to birdlife.

<sup>1</sup> Väisänen, R. A., Lehtikainen, A. & Sirkä, P. 2018: Suomen pesivän maailinnuston kannanvaihtelut 1975–2017. – Linnut-vuosikirja 2017: 16–31.

<sup>2</sup> Fraixedas, S. Lindén, A., Meller, K. Lindström, Å., Keisse, O., Käläsf, J.A., Husbyg, M., Leivtsh, A., Leivitsi, M., Lehtikainen A. 2017: Substantial decline of Northern European peatland bird populations: Consequences of drainage. – Biological Conservation 214: 223–232.





# Intensive forestry affects forest birds

## – especially resident birds decrease

**M**ost of Finland's surface area is forest, and the most abundant bird species in Finland are forest birds. Only about six percent of productive forest is protected in Finland, less than three percent in southern Finland. Because of the clear-felling-based forestry, a large proportion of commercial forest is young and even-aged. Old-growth, uneven-aged forest remains mainly in nature reserves.

About 80 species (i.e. about a third) of Finland's bird species breed in forested habitats.

Forestry has affected the birds considerably: over a quarter of the forest birds are now on the Red List. Recently declined species include particularly resident birds, species favouring old-growth forest and birds of prey<sup>1</sup>, such as the Tengmalm's Owl. However, there are differences in the population trends of the forest birds. Many species with a southerly distribution and flexible habitat requirements have increased and extended their range northwards due to climate change<sup>2</sup>.





**The felling of old-growth forest destroys breeding sites of the Northern Goshawk and other birds of prey.**

MICHA FAGER



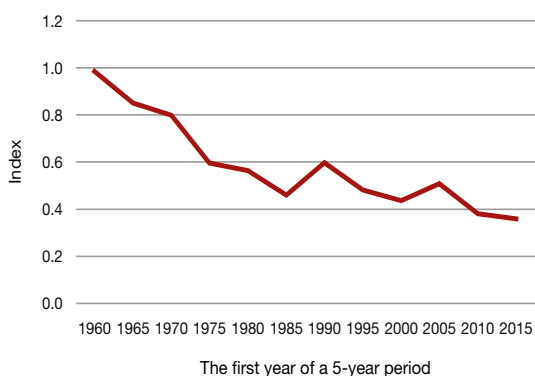
MARKUS VARESVOO / LINTUKUVA.FI

## The Siberian Jay is disappearing from southern Finland

■ Birds dependent on old-growth forests, such as the Siberian Jay, have decreased especially in southern Finland where there are not enough suitable habitats. Even if single habitats of the species requiring old-growth forests are protected, the isolation of the populations often leads to the disappearance of the species from the sites.

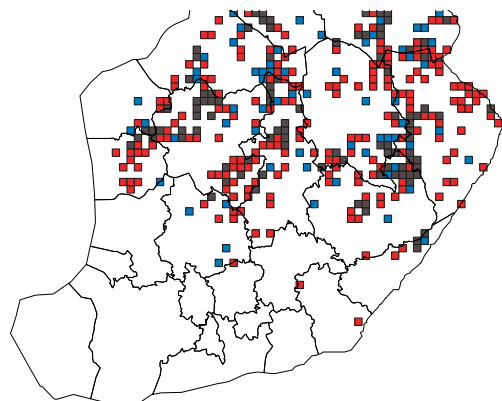
Several of the Siberian Jay's territories in southern Finland, including many of those in Pirkanmaa and in

Suomenselkä, have been deserted during the 2000s. In South Karelia, the species thrives in just the few fragments of old-growth forest left. The Siberian Jay needs above all a habitat with continuous forest cover and a patch of old-growth forest as its core territory<sup>3</sup>. Vast open areas – clear-felled areas or stapling stands – prevent the Jay's dispersal and cause small populations to isolate and eventually go extinct.

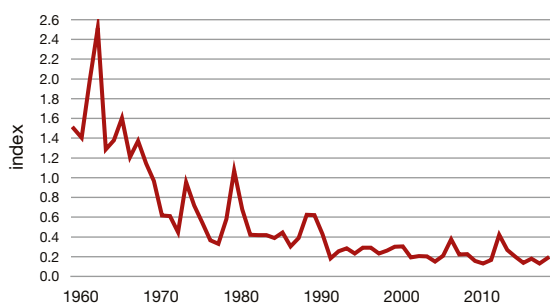


**The winter bird counts show that resident birds, dependent on forests during the whole annual cycle, have decreased. The graph represents the mean abundance of resident forest birds in five-year periods. Data: Luomus.**

**The Siberian Jay has declined especially in southern Finland. A comparison based on the sightings reported in the Tiira observation database in years 2007–2010 and 2016–2019 shows that it has disappeared from large areas e.g. in Suomenselkä and in Ostrobothnia. Red squares represent 100 square kilometre areas where the species was observed only during the first period, blue squares the observations only during the second period, and grey squares those during both periods. Data: BirdLife Finland / Tiira observation database.**







**The trend of the Black Grouse in Finnish winter bird counts shows that the grouse populations have greatly declined since last century. Periodical population variations are characteristic for the grouse populations, but the current peak years are just a shadow of the former years.** Data: Luomus.



PERTTI KOSKIMIES

## The grouse populations are a just a shadow of what they used to be

■ The grouse populations of Finnish forests have been relatively stable in recent years. However, forestry has affected their populations significantly: the greatest decline was already in the 1960s and 1970s, when intensive forestry and drainage of

peatlands became more common<sup>4</sup>. The drainage and the simplification of the forest structure leading e.g. to the decrease in bilberries<sup>5</sup>, which are important to the grouse during the fledging period, is considered a key reason for the decline.

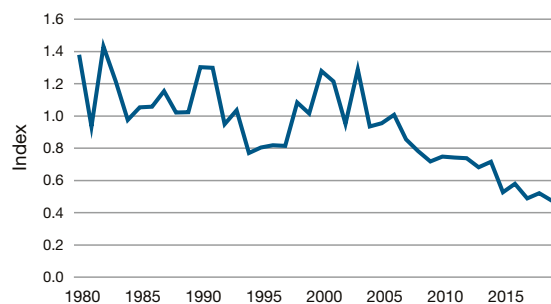
## The decline of the common forest bird Willow Tit continues

■ The Willow Tit, one of the most characteristic birds of Finnish forests, has dramatically decreased in recent years. In the mid-20th century, the Willow Tit was still among the five most abundant bird species in Finland. Today, it is classified as Endangered in Finland because of the significant decrease during the 2000s. The population of the Crested Tit, classified as Vulnerable, has had a similar decline in recent years.

The increase in winter mortality is regarded as a major cause for the Willow Tit's decline<sup>6</sup>. For its winter territory, the species requires ma-

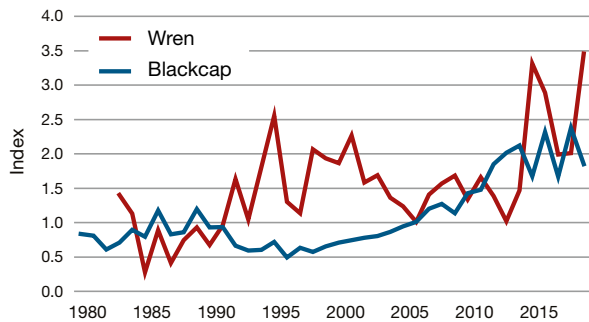
ture forest and large trees which have decreased due to forestry. In summer, the bird's breeding success may have been affected by the decrease of understory vegetation dominated by deciduous trees, important for feeding, and the loss of dead wood suitable for breeding.

Though global warming is often presented as the reason for the decline of forest birds, it is not the primary cause for the decline of the Willow Tit. The species has a relatively southern distribution in Finland, and it has decreased in the northern parts of its range as well.



**According to the summer line transects, the population of the Willow Tit in Finland has halved within just over a decade.** Data: Luomus.





**Summer line transects show that many southern species, such as the Wren (see photo) and the Blackcap are increasing in Finland's forests. Data: Luomus.**



## Southern forest birds are thriving in Finland

■ Species with a southerly range are increasing in Finland's forests. For example, the population of the Wren, one of the most common birds in European forests, has increased considerably in recent years – despite the setbacks often

brought by harsh winters. Most of the southern species now increasing are not particularly specialized, but breed in many types of forests.

### What can we do?

The current network of nature reserves in southern Finland is not sufficient to maintain the populations of the birds of old-growth forests. Therefore, a larger proportion of the forests should be protected, and the birds' living requirements should also be taken into better consideration in forest management. Structural features of the forest that are important to birds need to be maintained in forestry – for example, mature forests and big trees that are vital to e.g. tits in winter, the diversity of the age structure of the trees, as well as a dense understory providing food and shelter to the birds. The number of clear-cuts must be reduced so that more habitats remain for the old-growth forest species. To support many common forest species, e.g. the grouse, uneven-aged forestry must be introduced besides the clear-felling practices.



**The Tengmalm's Owl is suffering from the decrease in old-growth forests and the fragmentation of forests.**

- 1 Björklund, H., Saurola, P. & Valkama, J. 2020: Petolintuvuosi 2019 oli kohtalainen. – Linnut-vuosikirja 2019: 44–59.
- 2 Fraixedas, S., Linden, A. & Lehtikoinen, A. 2015: Population trends of common breeding forest birds in southern Finland are consistent with trends in forest management and climate change. – *Ornis Fennica* 92: 187–203.
- 3 The Finnish Association for Nature Conservation (FANC) 2011. <https://www.sil.fi/app/uploads/2018/10/metsankasittely-kuukkelialueella-2011.pdf>
- 4 Sirkiä, S. 2010: Effects of large-scale human land use on Capercaillie (*Tetrao urogallus* L.) populations in Finland. – PhD thesis, Department of Biosciences, Faculty of Biological and Environmental Sciences, University of Helsinki, Finland <https://www.luonnontila.fi/fi/elymparistot/metsat/me12-metsakasvillisuus>
- 5 Cirule, D., Krama, T., Krams, R., Elferts, D., Kaasik, A., Rantala, M. J., Mierauskas, P., Luoto, S. & Krams, I. A. 2017: Habitat quality affects stress responses and survival in a bird wintering under extremely low ambient temperatures. – *Science of Nature* 104: 99.





# Conservation work has helped the Baltic Sea species

**T**he winds of change have been blowing in the archipelago.

The Baltic Sea archipelago is a primary breeding habitat for over 20 bird species, of which about a half is on the Red List. The diverse habitats of the archipelago provide breeding habitat also for tens of species of e.g. forests, farmland and wetlands.

Over the last century, the bird populations in the archipelago have changed more than those in any other habitat. In the mid-20th century, the islands were still mainly open, and the archipelago was especially the kingdom of terns, waders, *Aythya* ducks and the Black Guillemot.

The birds of the archipelago had been over-hunted for decades and their eggs collected for human food. After the cease of the persecution, the bird populations increased as a rule until the 1990s. Especially large species such as the Common Eider, the Mute Swan, the Herring Gull and geese<sup>1</sup> and later also

the Cormorant, increased. The species benefited from the awakening conservation work – some of them also from the rising standards of living and the food provided by landfills that came with it. Subsequently, the populations of many species that increased in earlier decades have become stable or have even decreased.

There are many factors that have changed the bird populations in the Finnish archipelago in this century. The better waste treatment has caused a decline of the Herring Gull which benefited from landfills in earlier decades. The Lesser Black-backed Gull has been decreasing for decades because of environmental toxins that they get from their wintering areas and the predation on their fledglings by the Herring Gull. Eutrophication has benefited fish-eating species such as the Cormorant, but it has also led to the overgrowth of the shore meadows, which has weakened the habitats of waders.

**The Black Guillemot, which nests under rocks in the islets of the outer archipelago, is vulnerable to the invasive alien predator American mink.**

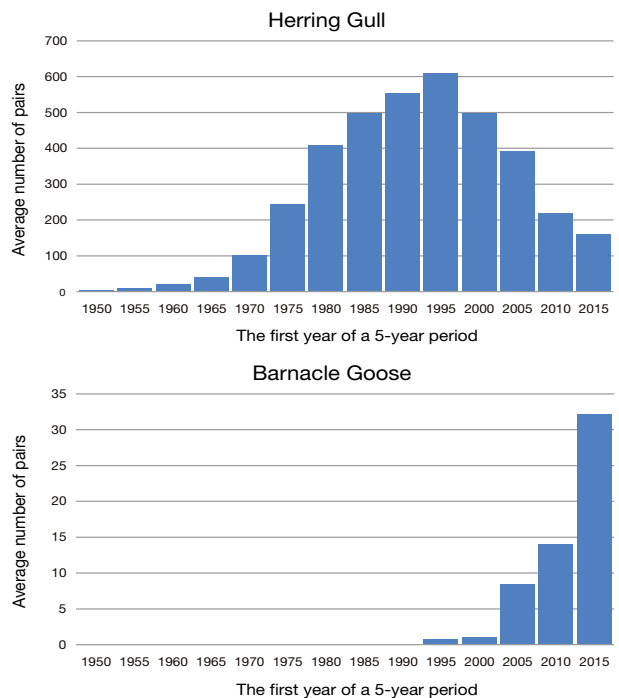
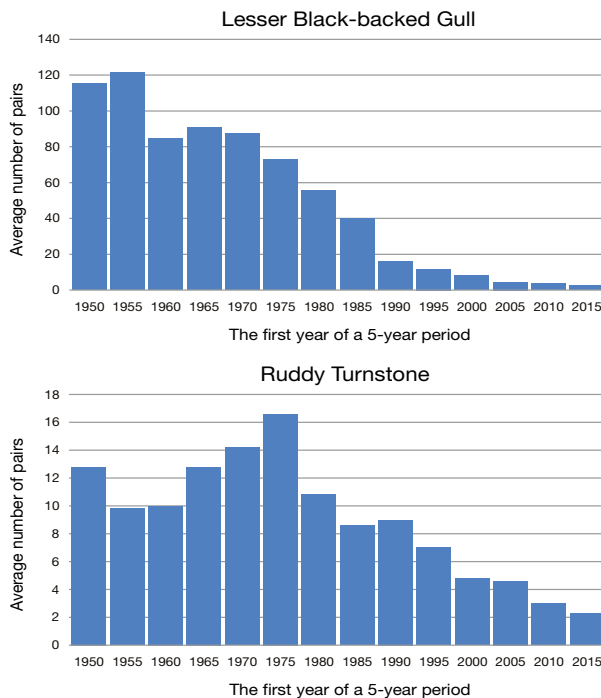


## A time series of over 70 years on the changes in archipelago birds

■ The breeding birds of the Aspskär Nature Reserve in Loviisa have been annually counted since the late 1940s. The long-term population trends of many other na-

ture reserves in the Finnish archipelago are also known, but the Aspskär data is the most complete. The bird population trends of Aspskär reflect the changes in the wider

archipelago as well. The bird monitoring in Aspskär is carried out by the nature conservation society Östra Nylands Fågel- och Naturskyddsförening, based in Loviisa.



**Bird populations have changed a lot in Aspskär in 70 years. The Lesser Black-backed Gull, abundant in the first years of the monitoring, has now almost disappeared. The population of the Herring Gull grew from near zero to over 600 pairs, but it has since considerably decreased. The population of the Ruddy Turnstone, the most common wader in the beginning of the monitoring, has collapsed. Tens of Barnacle Goose pairs are now breeding in the area, even if their first breeding was not recorded until 1996.** Data: Östra Nylands Fågel- och Naturskyddsförening.

The White-tailed Eagle, which has suffered from persecution and environmental toxins, has now returned to its traditional breeding sites thanks to persistent conservation work. The population of the White-tailed Eagle is now many times greater than in the past decades, when the populations of many archipelago birds increased. Today, the predator-prey relationship is balancing again, which is seen in the decrease of many species which the eagles prey on, especially in the outer archipelago.

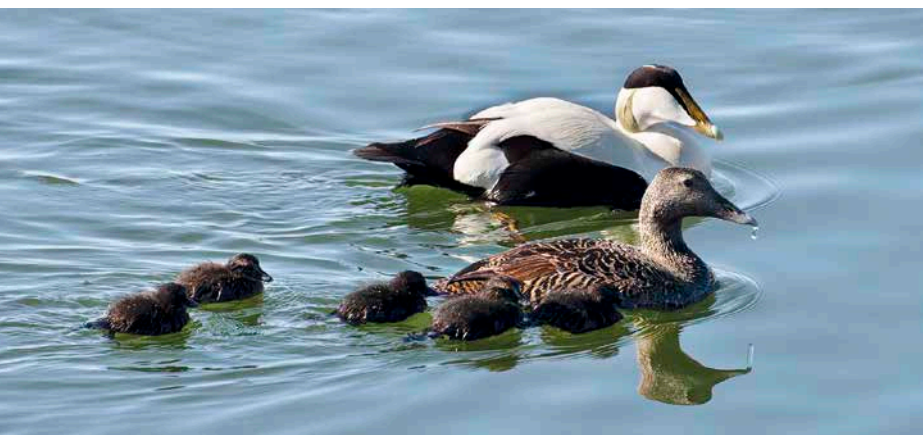
The American mink, an invasive alien predator that spread in the archipelago mainly in the 1970s, has in many places affected the breeding success of several bird species, such as the Black Guillemot. Thanks to the mass removal of American mink in the outer archipelago, it now causes less harm in many areas, but the damages have increased in those places where the removal has not been sufficient.



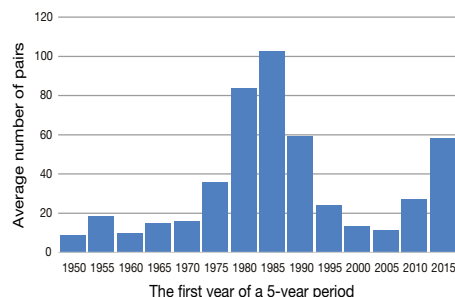
MICHA FAGER

**The Lesser Black-backed Gull has long been decreasing in the Baltic Sea and also in the inland lakes.**





MICHA FAGER



## The ups and downs of the Common Eider

■ The Common Eider population of Finland was much smaller in the mid-20th century than now. For decades, the eiders had been over-hunted and their eggs collected for food. The population increased over tenfold from the 1950s to the 1980s and reached its peak in the middle of the 1990s, after which the population has decreased. Today, the population is about the same size as in the beginning of the 1980s<sup>2</sup>.

The Common Eider is still the most abundant waterbird in the archipelago. About 100,000 pairs are estimated to breed in Finland. The population has col-

lapsed especially in the outer archipelago of Åland and southwest Finland. The increase in the White-tailed Eagle population is considered a significant cause for the decline, and also invasive alien predators, such as the American mink, prey on the Common Eider.

The predation pressure is higher in the outer archipelago; thus a greater part of the Common Eiders now breed in the more sheltered mid-archipelago. In addition, some of the females now take years off breeding and start breeding later than before as a response to the increased predation.

**The Common Eider population has been monitored in the Aspskär Nature Reserve since 1950. The area is located on the eastern edge of the Common Eider's distribution, which means that population changes are greatly dependent on the breeding success in the main breeding area. Nevertheless, the recent increase in breeding Eiders at Aspskär since 2010 has not been observed in the main breeding area of Finland.** Data: Östra Nylands Fågel- och Naturskyddsförening.

PETTERI TOLVANEN

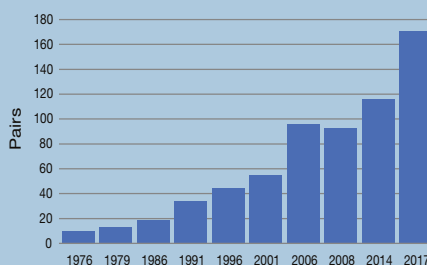
## The Black-tailed Godwit benefits from the management of shore meadows

■ The Black-tailed Godwit is a wader that prefers wet meadows. Its breeding population in Europe has decreased to less than a half since the 1980s. The species has suffered from the deterioration of shore meadows and the intensification of agriculture. The Black-tailed Godwit is assessed as Endangered in the EU. To stop the decrease, an international action plan

has been set up. Despite the plan, the decrease has continued.

In Finland, the population development of the Black-tailed Godwit has been opposite to that of most of Europe. A majority of Finland's Black-tailed Godwits breed at Liminka Bay in North Ostrobothnia, which was long the only permanent breeding site of the species. The restoration and

management of the coastal meadows of the site has helped the Black-tailed Godwit. The population at the site was about 20 pairs in the 1980s, but almost 200 pairs today. Due to the growing population, the birds have started to breed on the nearby fields as well. Breeding pairs have also been recorded elsewhere in Ostrobothnia and in North Karelia.



**The population of the Black-tailed Godwit has greatly increased in North Ostrobothnia.** Data: Centre for Economic Development, Transport and the Environment for North Ostrobothnia.







### Coastal habitats overgrow – waders disappear

The eutrophication and overgrowth of the coastal habitats in Finland has reduced many bird species' survival. Reedbeds have invaded the majority of Finland's coastal area, which was formerly open meadows<sup>3</sup>. The change is caused both by nutrient load and the reduction of grazing cattle. Particularly waders and dabbling ducks have suffered from the overgrowth.

The endangered Southern Dunlin (*Calidris alpina schinzii*) is an example of the decreasing waders of the coastal meadows. The current breeding population of Finland is less than 50 pairs. In the 1960s it was estimated that there were as many as 70 breeding pairs in the region of Pori, on the coast of the Bothnian Sea, alone, while today the population of this area is 2 to 3 pairs. The survival of the Southern Dunlin requires management of coastal meadows. In North Ostrobothnia, the efforts put into the management and grazing in protected shore meadows have slowed down the decline of the population. Most of Finland's Southern Dunlins now breed in the managed meadows in North Ostrobothnia. Without the management, the Southern Dunlin might have already disappeared from Finland.

Other scarce and endangered species, such as the Black-tailed Godwit and the Ruff, have also benefited from the management of the shore meadows in North Ostrobothnia.

### What can we do?

A large part of the islets and islands important for birds breeding in the outer archipelago have been protected. The situation is worse in the inner and mid-archipelago. More important breeding sites need to be protected there, and the construction of summer cottages as well as boating and other recreational activities need to be directed away from the important bird areas. The removal of invasive alien predators, especially the American mink, has to be continued in the archipelago and extended to new areas.

Open shallow shores are necessary for the birds as breeding areas and as foraging areas during migration. The eutrophication of the shores needs to be controlled, grazing that keeps the shores open increased, and overgrown shores restored. Although grazing is necessary to maintain the habitats, the birds' incubation period needs to be taken into account to prevent the trampling of nests.

**Grazing cattle are a simple and efficient way to maintain the important coastal meadows.**

- 1 Hildén, O. ja Hario, M. 1993: Muuttuva saaristolinnusto. – Omakustanne. Forssan kirjapaino. 317 s.
- 2 Below, A., Lehtikoinen, A., Mikkola-Roos, M., Kurvinen, L. & Laaksonen, T. 2019: Saaristolintukantojen kehitys vuosina 1980–2018. – Linnut vuosikirja 2018: 56–67.
- 3 Kontula, T. & Raunio, A. (toim.). 2018: Suomen luontotyyppien uhanalaisuus 2018. Luontotyyppien punainen kirja. Osa 1: Tulokset ja arvioinnin perusteet. – Suomen ympäristökeskus ja ympäristöministeriö, Helsinki. Suomen ympäristö 5/2018. 388 s.



# Global warming changes the bird populations of Finland



**T**he shorter winters, earlier springs and prolonged autumns can already be seen as changes in the timing of migration and in the number of wintering birds in Finland. The distribution of the breeding species is also shifting northwards in Europe and in Finland<sup>1</sup>.

Climate change reduces the survival of the species that have adapted to snowy and frosty winters, such as the Willow Ptarmigan. On the other hand, global warming has helped southern species such as the Blackbird, the Grey Heron and the Eurasian Nuthatch to increase and expand their distribution in Finland. The first breedings of the Firecrest were recorded in the summer 2020, and the species is expected to quickly establish as a permanent breeding species in Finland.

Due to global warming, Finland's importance as a resting and wintering area for waterbirds is increasing. The period when marine areas and lakes are covered with ice becomes shorter, which increases the number of wintering waterbirds. Today, the change can already be seen e.g. in the significant increase in the numbers of the Tufted Duck, the Long-tailed Duck and swans on the coastal areas of Finland in winter<sup>2</sup>.

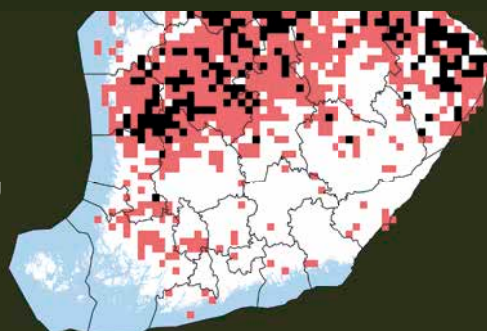
## The Willow Ptarmigan suffers from its winter plumage

■ The Willow Ptarmigan has adapted to living in the peatlands and fjells of the boreal region. Its plumage is brownish in the summer and white in winter. The lack of snow in winter means that the camouflage of the species is lost. The distribution of the Willow Ptarmigan in Finland has long contracted towards

the north, and in the 21st century, the Willow Ptarmigan has decreased alarmingly in large parts of its range.

In addition to the climate change, the drainage of peatlands has also reduced the availability of suitable habitats to the Willow Ptarmigan.

**The distribution of the Willow Ptarmigan has substantially contracted over the last decades. Red squares on the map represent the 100 square kilometre areas where the Willow Ptarmigan was observed during the first two bird atlas surveys (1974–1979 and 1986–1989), while the black squares represent observations made in 2016–2020. Data: Luomus / Bird Atlas, BirdLife Finland / Tiira observation database 2016–2020.**





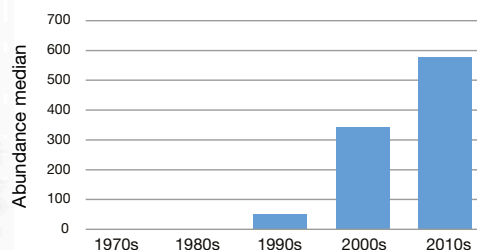


## The Baltic Sea ice cover declines – the number of wintering Tufted Ducks increases

■ Due to the milder winters and the decreasing ice cover, the Tufted Duck has become a common wintering species in Finland. In the extensive winter counts carried out annually in Åland islands, usually only a few Tufted Ducks were observed in the 1970s, but now they are counted in thousands. In addition to Åland, large numbers of Tufted Ducks now winter in the southwestern archipelago and the western parts of the

Gulf of Finland during the mildest winters.

The increase in wintering Tufted Ducks does not indicate an increase in their breeding population, but the shift of the wintering areas towards the north. Even though Tufted Duck has increased as a wintering species in Finland, the breeding population has considerably decreased, and the species has accordingly been assessed as Endangered.



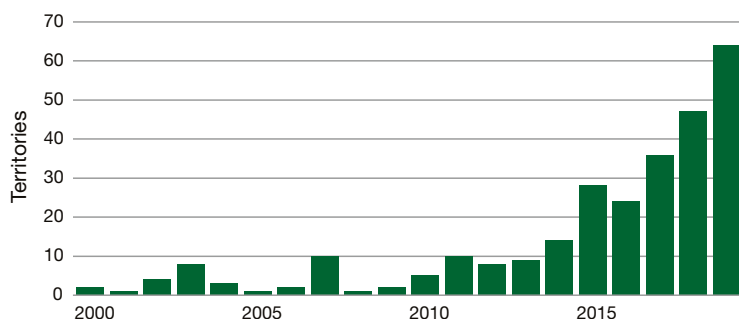
**The Tufted Duck has greatly increased in the mid-winter bird counts since the 1970s.** Data: Luomus.

## The Eurasian Nuthatch has established as a breeding bird in Finland

■ The Nuthatch's Siberian subspecies *asiatica* had a large-scale influx towards the west in autumn 1976. The next summer, it bred in Finland for the first time. Some occasional breedings were also recorded in the 1980s and 1990s after good migration in the autumn, but the eastern Nuthatches did not gain a permanent foothold in Finland. However, the western Nuthatch (ssp. *europaea*) was established as a breeding bird in Finland in the 2000s. These birds have arrived in Finland both from the southeast and from the west via Åland.



PERTTI RÄSP



**The Eurasian Nuthatch is spreading to Finland both from the southeast and via Åland. The number of territories has rapidly increased in the 2010s.** Data: BirdLife Finland.

### What can we do?

Halting climate change is necessary to ensure that the fjell, peatland and boreal forest bird species that are a part of the traditional community of Finland's birds remain here for the next generations, and that the conditions in the wintering areas of our migratory birds e.g. in Africa and in the Mediterranean stay favourable.

Global warming brings new challenges to bird protection. The current network of nature reserves does not include areas that have become important due to climate change. For example, the number of waterbirds wintering in Finland is rising, and many of the wintering areas have already become significant on a global scale. The network of nature reserves needs to be expanded such that they also include the important waterbird wintering areas.

The nature reserves also play a role in helping the breeding birds to adapt to the climate change and to slow down the shift of distribution towards the north. Preserving the habitats important to northern species helps to protect the populations in changing conditions. In some cases, the nature reserves can also help some southern species to find good-quality habitats in Finland.

In addition to national measures, we have to support actions that promote sustainable development and nature conservation in the developing countries, in particular in the wintering areas of birds breeding in Finland. We must also call for more ambitious action in the international negotiations that aim at agreements on biodiversity and climate change.

- 1 Keller, V., Herrando, S., Voříšek, P., Franch, M., Kipson, M., Milanese, P., Martí, D., Anton, M., Klvaňová, A., Kalyakin, M. V., Bauer, H.-G. & Foppen, R. P. B. 2020: European Breeding Bird Atlas 2: Distribution, Abundance and Change. – European Bird Census Council & Lynx Edicions, Barcelona.
- 2 Fraixedas, S., Lehtikoinen, A., & Lindén, A. 2015: Impacts of climate and land-use change on wintering bird populations in Finland. – Journal of Avian Biology, 46(1): 63–72.



# Finland is an important area for migratory birds



Only a few resident birds, such as the tits and the grouse, spend the whole year in their home range. Most of the birds breeding in Finland are migratory. Their survival is dependent not only on the quality of the breeding area, but also on the conditions in the wintering areas and in the areas they use during migration.

Migratory birds depend on the quality of the feeding and resting along the migratory route. In spring, the birds store food reserves for continuing the migration and breeding. If they arrive in the breeding area in too poor condition, the breeding success will be low. In autumn, they store food reserves for the migration and the winter. If they do not have enough food

reserves, the wintertime can be fatal, especially to species wintering in Europe.

For example, many waders and ducks are dependent on wetlands such as shallow coastal shores with sparse vegetation and eutrophic lakes during migration and winter. The area covered by wetlands has globally decreased over 35 percent since the 1970s<sup>1</sup>. The decrease of the wetlands is a threat to migratory birds that breed in Finland as well.

Finland's coastline, the shallow inland lakes, and arable lands are important foraging and resting areas to millions of ducks, geese and waders that winter in Europe or Africa and breed in Russia but migrate through Finland twice a year.





MICHA FAGER

Open shallow shores are important resting areas for waders migrating through Finland, such as the Dunlin, the Red Knot and the Sanderling.

JAN SÖDERSVED



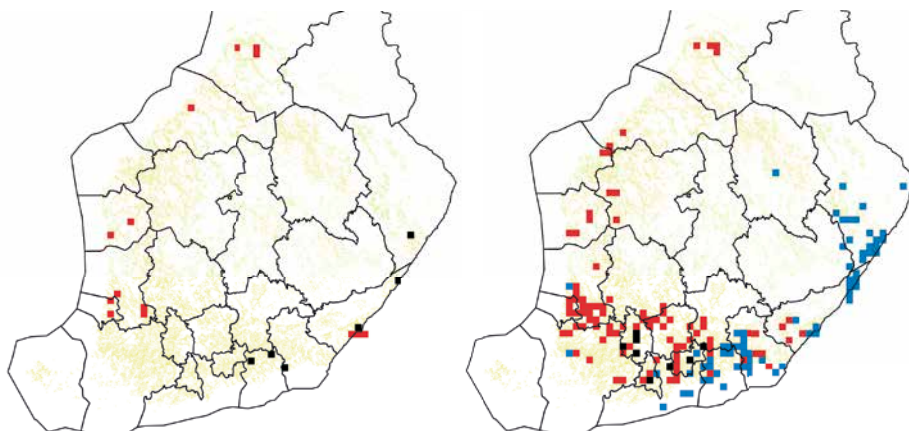
## The geese have found the fields of Finland

■ The most obvious change in the occurrence of the migratory birds in Finland has been the increase in the number of staging geese. For example, the Barnacle Goose breeding in Arctic Russia were seen in Finland's fields in only small numbers before the autumn 2006. Within a few years, the number of Barnacle Geese resting in Finland during both spring and autumn has increased to hundreds of thousands, even to a million. The migratory route of the Tundra Bean Goose and the White-fronted Goose has also shifted further north and today, they arrive in Finland already in the early spring. The shift is probably caused by global warming, which has moved the wintering and resting areas further north and changed the

timing of the migration. Because of the change of the migration pattern, the damages the geese cause to agriculture have increased.

The breeding populations of the geese, particularly the Barnacle Goose, have also increased in the last decades. However, the increase in the breeding population is negligible compared to the increase in the numbers of migrating geese that stage in Finland.

In Finland, the huge flocks of geese foraging in fields are a new challenge, but they are old news for many other European countries. Especially in Western Europe, the damages to agriculture by the flocks of geese wintering and resting in fields have had to be addressed for decades.



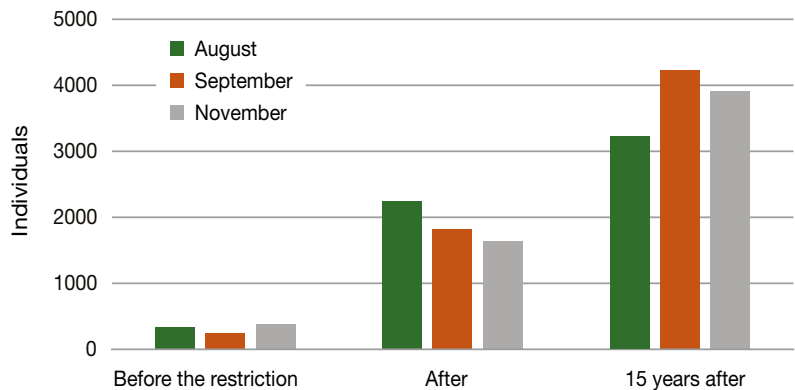
The migration pattern of all of the goose species has greatly changed in only a decade. On the left, the concentrations of at least a thousand geese recorded within 100 square kilometre areas in springs 2007–2009 are represented. On the right, such concentrations in springs 2017–2019 are represented. Blue squares stand for the Barnacle Goose, red ones for the Bean Goose and black ones for the White-fronted Goose. Data: BirdLife Finland / Tiira observation database.



## Waterbirds need hunting-free areas in the autumn

■ The open season for waterfowl hunting that begins the 20th of August drives the ducks to start their autumn migration as much as one and a half months before the natural timing of their migration. Premature autumn migration is detrimental to the birds because they have not gathered enough energy reserves for migration and are forced to move to areas where the hunting pressure is higher than in Finland<sup>2</sup>.

There are only a few bird-rich wetlands where hunting is not allowed in Finland. In the areas where duck hunting has been restricted – such as Mietoistenlahti, wetlands in the Helsinki region and the hunting free zone of the Liminka bay – great numbers of waterbirds are recorded until late autumn. To secure the birds' autumn survival, Finland needs a network of hunting-free areas that covers the entire country. Such a network was established in Denmark as early as in the 1990s.



**The hunting ban has substantially increased the number of ducks foraging during autumn at Hirvaslahti, Liminka Bay. The number of waterbirds increased rapidly as soon as the 1000-hectare hunting free zone was established. The graph shows the median peak number of ducks within a four-year period before the protection, right after the establishment of the protected area, and 15 years later. The numbers do not include geese or swans, but they have also greatly increased.** Data: Centre for Economic Development, Transport and the Environment for North Ostrobothnia.

Waterbirds and geese stay in the Liminka Bay protected area throughout autumn.







Curlew Sandpipers are only seen in Finland during migration. The majority are observed in July–September.

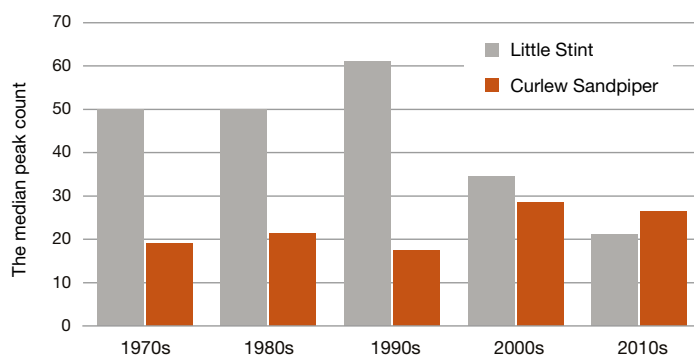
## Birdwatchers' sightings tell of changes in the populations of migratory birds

■ In Finland, such massive flocks of waders as on the tidal shores of oceans are not seen. However, a large share of the waders breeding in Russian tundra migrate through Finland, and Finland's coastal shores are an important resting site along the waders' flyway.

The population changes of many arctic waders are poorly known because the species breed in the vast tundra region and they winter e.g. in the extensive tidal shores in Africa, from where long-time monitoring data does not exist.

Birdwatchers have recorded wader observations from Yyteri, west coast

of Finland, for decades. The data shows that the number of Little Stints migrating through Finland has decreased. A similar decline can be seen e.g. in the long-term data of Jurmo bird observatory in southwestern archipelago. Another arctic wader, the Curlew Sandpiper, appears to have the opposite population trend. In the Yyteri data, the Curlew Sandpiper has slightly increased and in Jurmo the numbers have remained stable since the 1980s.



**In Yyteri, west coast of Finland, the number of Little Stints recorded in autumn has more than halved over 30 years. The Curlew Sandpiper has not decreased according to the Yyteri data, rather the opposite.**

Data: Pori Ornithological Society.

## What can we do?

The management of wetlands and coastal meadows increases the amount of habitat important for birds migrating through Finland. The management also benefits many decreased breeding species, such as the Southern Dunlin. The management must be continued and extended to new areas.

Many kinds of human activity at the important sites disturb the birds and reduce the time for feeding, which hampers their preparation for migration. In wintering areas and in the areas that are important during migration, unnecessary disturbance must be reduced e.g. by directing human action such that the birds are not disturbed.

To prevent the damages to the agriculture caused by geese and other large birds foraging on the fields of Finland and, on the other hand, to ensure that the birds can feed safely, there is a need for fields that are specifically cultivated for birds. It is necessary to redirect the birds to such fields from those where they cause significant damage.

- 1 Ramsar 2018: The Global Wetland Outlook, status and trends 2018.
- 2 Väänänen, V.-M. 2001: Hunting disturbance and the timing of autumn migration in *Anas* species. – *Wildlife Biology*, 7(3): 3–9.





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