

# Invasive alien species

Innholdsfortegnelse

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The spread of invasive alien species can have negative impacts on the environment, the health of people, animals and plants, and the economy. Norway's strategy is to avoid the unintentional introduction of non-native species and to contain and control invasive alien species that have been introduced.



The American mink (*Neovison vison*) is an invasive alien species in Norway. It was introduced to Norway for commercial fur farming, but animals have escaped and been deliberately released from farms, and mink have become firmly established throughout Norway. As a result, populations of a number of other species have declined. Ground-nesting seabirds are particularly badly affected. Photo: Terje Kolaas, naturspesialisten.no



The Spanish slug (*Arion vulgaris*) was introduced with imported soil and plants, and is now abundant in much of Norway as far north as Trondheim. Photo: Bård Bredesen, Naturarkivet.no



The garden lupin (*Lupinus polyphyllus*) is an introduced species that often grows along roadsides and in meadows and other open areas in Norway. It spreads rapidly and outcompetes native species. Photo: Bård Bredesen, Naturarkivet.no



Signal crayfish was introduced from North America, and released in Sweden in 1960. The signal crayfish (*Pacifastacus leniusculus*) was introduced to Sweden from North America in 1960 and was first recorded in Norway in 2006. Signal crayfish have had devastating effects on other freshwater crayfish in Europe because they carry crayfish plague, a serious fungal disease that is lethal to native crayfish. The disease has already spread to Norway, and the authorities are seeking to contain and control both crayfish plague and signal crayfish. Photo: Anne Lise Sørensen



The raccoon dog (*Nyctereutes procyonoides*) is native to Eastern Asia. It was introduced to the former Soviet Union, and is now well established in much of Finland. It is feared that it may also spread to Norway and have adverse effects on native species. The raccoon dog is omnivorous and can have severe impacts on populations of various species, including frogs, toads, newts and ground-nesting birds. Photo: Pekka J. Nikkander



The Pacific oyster (*Crassostrea gigas*) is native to the Pacific coast of Asia. It is now established in Norwegian waters, and climate change and rising sea temperatures are expected to make conditions even more suitable for the species. Pacific oysters may also carry disease. It is unclear whether they have spread from oyster farms in Norway or whether ocean currents have carried larvae to Norwegian waters. Photo: Kim Abel, naturarkivet.no



The pike (*Esox lucius*) is native to some parts of Norway, but can cause serious damage when it is introduced to other areas. For instance, it can cause a serious decline in native trout populations. Trout are also important as intermediate hosts in the life cycle of the freshwater pearl mussel (*Margaritifera margaritifera*), which is classified as vulnerable on the Norwegian Red List. Introduction of pike to some rivers may therefore have an indirect impact on freshwater mussel populations. Photo: Børre Dervo



The rainbow trout (*Oncorhynchus mykiss*) is a North American species that is extensively farmed in Norway, and escaped fish have often been found in our waters. If breeding populations of rainbow trout become established in Norwegian rivers, this could have serious negative impacts on wild salmon, trout and Arctic char stocks. Escaped rainbow trout may also carry salmon lice and disease. Photo: Asbjørn Borge

## STATE

# A growing threat to Norwegian ecosystems

New non-native species are constantly being discovered in the wild in Norway. This is partly explained by globalisation of the economy and the accompanying increase in trade and travel. Climate change is another important factor. With generally higher temperatures, a longer growing season, and shorter, milder winters, it will become easier for alien species to establish populations in Norway.

## Many new alien species

The twentieth century saw the arrival of many new alien species in Norway, whether on land, in rivers and lakes or at sea. The infamous salmon parasite *Gyrodactylus salaris* arrived as a "hitchhiker" on salmon smolt imported in the early days of fish farming. The harlequin ladybird was first recorded in an imported consignment of thuja. The Spanish slug – the gardener's nightmare – has spread with imported vegetables.

The most recent arrivals in Norway include the signal crayfish, raccoon dog, Nuttall's pondweed and a new species of bark beetle. These are all species that could have serious impacts on ecosystems and threaten native Norwegian species if they become established in the wild.

The map shows species on the Norwegian Black List 2012 in and around the capital Oslo. You can zoom in to see further detail or click on "More maps and functions" to check the situation in other parts of the country.

## Species moving rapidly polewards

New research has shown that the distribution of many species is shifting in response to a changing climate – and much faster than was previously thought. A study looked at roughly 2 000 species, which are moving at an average rate of more than 4.5 metres a day. This means that their ranges shift about 1.6 km closer to the poles every year.

## PRESSURE

# How can alien species cause damage?

Alien species are all those that have been introduced to an area where they are not found naturally. Many of them are unable to adapt to a new environment or are harmless if they do survive, but others pose a threat to native plants and animals, and are called invasive alien species. They may for instance:

- compete with native species for food and/or habitat
- alter the habitat in which they live
- carry diseases or parasites
- hybridise with native species
- increase the risk that already threatened species will become extinct, or displace native species from an area.

## Norwegian Black List

In June 2012, the Norwegian Biodiversity Information Centre published Alien species in Norway – with the Norwegian Black List 2012. This contains an overview of alien species recorded in Norway and an assessment of their impacts on Norwegian nature.

Alien species are placed in one of the five impact categories shown in the table below, depending on how serious a threat they are considered to be to native biodiversity. Severe impact species are most likely to cause problems, for example by outcompeting native species or hybridising with them.

The Biodiversity Information Centre has now registered 2320 alien species in Norway. Risk assessments have been carried out for 1180 species that already reproduce in the wild in Norway or are expected to do so in the next 50 years, and 134 that could pose an ecological risk if they spread to the country. In all, 217 species have been placed in the categories "severe impact" and "high impact". Severe impact species include the Spanish slug, American mink and March Lupine.

## RESPONSE

# What is Norway doing to control alien species?

## Three-stage approach

Prevention is better than control: it is easier and cheaper to avoid the introduction of alien species in the first place. This is why it is so important never to take plants and animals with you across borders unless you are quite sure it is permitted.

If an alien species has already reached Norway, the next option is eradication. This is usually only feasible before a species has spread too widely, so early detection of new non-native species and a rapid response are important.

If it is not possible to eradicate a species, the third option is to contain its spread and control its numbers. For instance, many gardeners inspect their gardens regularly and collect and kill as many Spanish slugs as possible.

## Who is responsible?

The environmental authorities coordinate much of the work on alien species in Norway, but all sectors are responsible for the impacts of their own activities, including the introduction of alien species.

This was made clear in Norway's Strategy on Invasive Alien Species, which was published in 2007. The strategy describes Norway's goals and what action can be taken to prevent the spread of alien species. It requires cooperation between the authorities, research communities and voluntary organisations.

The Ministry of Climate and Environment is responsible for ensuring that everyone complies with the legislation on alien species. The Norwegian Biodiversity Information Centre gathers information about alien species that are already present in Norway and what kind of damage they may do. It also assesses which alien species are likely to spread to Norway in the future. The Norwegian Environment Agency provides advice on managing alien species.

The authorities have drawn up action plans for dealing with certain invasive alien species: those for American mink, raccoon dog, Spanish slug, the salmon parasite *Gyrodactylus salaris* and the Japanese rose have been completed.

The county authorities are involved in preparing action plans and coordinating control and eradication efforts. Many municipalities are also involved in containing, controlling and eradicating alien species, and in some cases they also enlist the help of the general public.