

SNH Guidance Notice : Native Range

Subject : Native Range

Name : Native Range Guidance

Custodian Unit : Ecosystems and Biodiversity Unit

Internal Audience : All employees responsible for providing advice on native range in relation to proposals to release animals or plant in the wild, including reintroductions and other types of conservation translocations.

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Notice Sub-Types

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Guidance



Scottish Natural Heritage
All of nature for all of Scotland

Native range

November 2014

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1 Purpose

This guidance note sets out principles for defining ‘native range’ – a term used in the Wildlife and Countryside Act 1981 to distinguish between native and non-native species. In Scotland, it is an offence to release a species outwith its native range, without a licence. This guidance is primarily aimed at SNH staff responsible for providing advice on native range in relation to releasing animals or planting in the wild, including reintroductions and other types of conservation translocations. It is important to understand how ‘native range’ is defined as this has implications for offences under the 1981 Act and for licensing.

It is impractical to provide advice on native range at the species level due to the wide variety of distribution patterns, dispersal strategies and history of importation by humans. The aim is to provide principles that can be applied across the breadth of Scotland’s flora and fauna rather than comprehensive guidance for every species that someone may wish to move.

2 Background

SNH is responsible for providing guidance on the definition of native range under the Framework of Responsibilities on Non-Native Species. The term is used to differentiate between ‘native’ and ‘non-native’ in Section 14 of the Wildlife and Countryside Act 1981 (the 1981 Act). These non-native species provisions were significantly amended by the Wildlife and Natural Environment (Scotland) Act 2011.

Section 14 of the 1981 Act aims to prevent the release and spread of non-native plants and animals into areas where they can cause damage to native habitats and species or economic interests. In Scotland, there is a presumption of ‘no-release’ for any species ‘outwith their native range’ (Schedule 9 of the 1981 Act has been repealed in Scotland and no longer applies). The ‘release’ offences are different for animals and plants:

- Animals – releasing, allowing to escape from captivity, or causing to be outwith the control of any person, at a place outwith its native range; and.
- Plants – planting, or causing to grow, in the wild at a place outwith its native range.

Plants and animals show a greater tendency to become invasive when they are moved to a new environment where they have few natural control mechanisms, such as predators or herbivores. Around 8% of the non-native plant species and 63% of the non-native animal species established in Great Britain are considered to be invasive (Roy *et al.*, 2010).

The fact that a species is outwith its native range does not necessarily make it a priority for control or eradication. Decisions about control should be based on the invasive threat posed by the species and the feasibility of taking action. Certain low-risk species are exempted from Section 14 of the 1981 Act (see 3.1 and 3.2 below). Others may be released or planted in the wild outwith their native range under licence from SNH.

If an applicant is uncertain about whether a species is within its native range or exempted, the advice should be to stop, and not to release or plant until they have sought further advice from SNH.

The *Scottish Code for Conservation Translocations* (National Species Reintroduction Forum, [2014](#)) identifies a range of considerations that practitioners need to take into account when moving a species from one place to another. This includes the need to apply to SNH for a licence to release a species beyond its native range, or to reintroduce a species to a location where it was (assumed) formerly present, and that it is unable to re-colonise naturally. Note that for some species another sort of licence may also be required; the sections of the 1981 Act that relate to the protection of species still apply if the species is outwith its native range.

2.1 Definitions

Section 14 of the 1981 Act defines 'native range' as:

"...the locality to which the animal or plant of that type is indigenous, and does not refer to any locality to which that type of animal or plant has been imported (whether intentionally or otherwise) by any person."

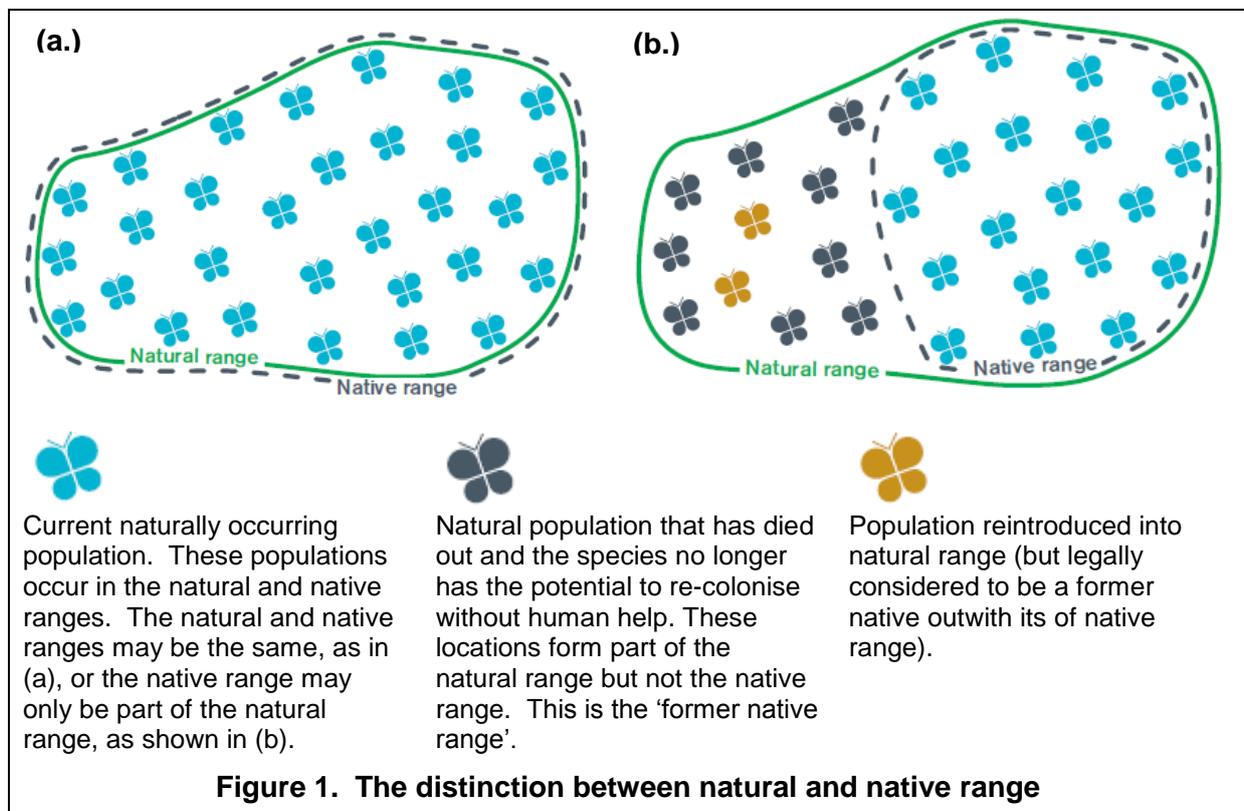
In this context, 'indigenous' means "occurring naturally in a particular place" (OED, 2013).

The definitions of 'animal' and 'plant' in the 1981 Act includes animals, plants and fungi, but does not include microscopic organisms such as bacteria and viruses.

2.2 Understanding the differences between 'native range' and 'natural range'

Native range has a specific legal meaning in the context of moving species between locations within Scotland. In this context it does not mean the same as 'natural range,' a term used in the Convention on Biological Diversity (CBD, [2002](#)) and the Habitats Directive.

These terms are similar, but with one important difference: once an animal or plant population has died out, and it no longer has the potential to re-colonise naturally, that locality is legally considered to be outwith its native range. If there is a subsequent reintroduction, the reintroduced population is considered to be outwith native range for the purposes of the 1981 Act, despite being within the 'natural' range (Figure 1).



The rest of this guidance note sets out methods for determining native range and considers its implications for licensing. The decision tree in [Annex 1](#) provides a summary of the process. The *Code of Practice on Non-Native Species* (Scottish Government, [2012](#)) provides further advice on what this definition of native range means in practice.

3 Licensing implications

In Scotland, there is a legal presumption of no release for species in locations that are outwith their native range. Any such release may require a licence from SNH. To determine whether a licence is required the applicant needs to consider the following questions:

3.1 *Is the proposal considered to be releasing an animal or planting in the wild?*

An animal is considered to be 'released' when it is no longer under human control. Circumstances in which animals are not considered to be 'released' include: animals kept in enclosures from which they cannot escape; free-range livestock which can be gathered for husbandry purposes; and pets or working animals that are expected to return to their owners. Section 4 of the *Code of Practice on Non-Native Species* has further examples.

The term 'in the wild' can include both rural and urban environments. It includes everywhere except land that is intensively managed, such as arable, horticultural land, improved pasture, the built environment and gardens. Section 5 of the *Code of Practice on Non-Native Species* provides more detail. Growing non-native plants in these areas is not an offence but it can be an offence to permit a non-native plant to spread from these areas into the wild.

3.2 *Is it a species that has been exempted from Section 14 of the 1981 Act?*

Releasing common pheasant and red-legged partridge for shooting is exempted under Section 14(2A) of the 1981 Act. Planting certain non-native trees, shrubs and annual flowers in the wild is permitted by Exemption Order (Orders 2012/[173](#) and S.S.I 2012/[205](#)). Releasing rod caught fish, at the same location and on the same day, is also exempted.

3.3 *Is the location within the species' native range?*

If the answers to questions 3.1 and 3.2 suggest that the proposal counts as releasing an animal or planting in the wild and it is not covered by an exemption, the applicant needs to consider whether the location is within the species' native range. They may come to SNH for advice as the answer is not always straightforward:

- Some species are native in one part of the country but not another, for example native to the mainland but imported by humans onto certain islands.
- Where a species was moved a long time ago, it may be considered to be 'naturalised', but it is still outwith its native range.
- Although a species may have been moved unintentionally it is still considered to be outwith its native range.

Therefore current distribution alone should not be relied upon to decide whether a particular location is within the native range of a species. Sections 4 and 5 of this guidance will help to determine whether or not a location is within a species' native range.

If the location is outwith the species' native range the applicant must apply to SNH for a non-native species licence before they release the animal or plant in the wild. If the location is within its native range a non-native species licence is not required. In both instances, if the purpose for releasing or planting in the wild is nature conservation, applicants should be encouraged to follow the *Scottish Code for Conservation Translocations*. Note that another sort of licence might be required if the species is legally protected (see the [species licensing](#) section on the SNH website). Birds, animals and plants that are legally protected under the 1981 Act are still protected when they are outwith their native range.

If applicants are uncertain about the answers to any of these questions, the advice is to stop, and not to release or plant until they have sought further advice from SNH.

4 Status in Scotland?

4.1 Native or non-native?

A key question to consider is whether the species is native to Scotland or non-native. A species is considered to be outwith its native range, if it has been imported to a location by human action, whether intentionally or otherwise. Some species were imported a long time ago, but they are still considered to be outwith their native range, regardless of how long they have been established in the wild. Regular visitors that occur with reasonable frequency or predictability, such as seasonal migrants, are considered to be within their native range. This does not include species that occur only as vagrants or strays. Imported species are often referred to as 'introduced'. Further clarification on whether a particular species is considered to be native or non-native in Scotland can be found from the following authoritative sources:

- [New atlas of British and Irish Flora.](#)
- [Attributes of British and Irish mosses, liverworts and hornworts.](#)
- [Scottish list of birds](#) (Scottish Ornithologists' Club).
- *Handbook of Mammals of the British Isles (Harris & Yalden, 2008).*
- Scotland's freshwater fish: ecology, conservation & folklore (Maitland, 2007).
- [Checklist of amphibians and reptiles in Scotland.](#)
- [Checklist of invertebrate species in Scotland.](#)

If the species is introduced or vagrant to Scotland it is outwith its native range. (See section 5 for further advice on species native to Scotland).

4.2 Former natives

'Former natives' are species that once were native in a location but the population has died out and the species no longer has the potential to re-colonise that location naturally. Paragraph 3.12 of the *Code of Practice on Non-Native Species* states that,

"For the purposes of the 1981 Act former natives are considered to be outwith their native range and it is therefore an offence to release a former native without a licence."

For ease of reference, Annex 2 contains a list of animals and plants that have died out in the past in Scotland, and which SNH considers to be former natives. **The list is not exhaustive.** Proposals to reintroduce animals and plants that are not listed here must still be assessed against the remaining criteria in this guidance.

Once a former native has been reintroduced back into a locality. This area does not become part of its native range. This is because reintroduction involves it being moved by humans.

Applicants wishing to reintroduce a former native species need to consider its potential impacts on the environment and other land users. Before SNH can grant a licence for reintroduction, we need to be satisfied that the impacts will be negligible, or that any negative impacts will be adequately mitigated and/or out-weighted by benefits.

All applications to reintroduce former native species to Scotland must address the considerations set out in the *Scottish Code for Conservation Translocations*.

Note that where a former native re-colonises an area naturally, without human intervention, it is considered to be native across its new distribution. A licence is not required to reintroduce a native species to a location that it still has the potential to re-colonise naturally, provided there are no natural barriers to movement that prevent it from doing so.

4.3 Taxonomy

The native range of subspecies, types or races of animals and plants within a single species can be quite different. For example, many of the animals and plants considered endemic to the British Isles are sub-species of species that are also found in continental Europe. Maintaining genetic diversity is an important nature conservation objective. Before animals or plants are released or planted in a particular location checks should be made on whether they are of a subspecies, type or race that is native to that location. There may be valid reasons for proposing to release a non-indigenous type or subspecies to a location, but a special case would need to be made for this. Different populations of animals and plants that display distinct genetic or physical characteristics may be considered to be different 'types' for the purposes of the 1981 Act. If in doubt seek advice from an expert in the taxonomy of that species, and refer to the *Scottish Code for Conservation Translocations*.

Populations of many native trees and shrubs have distinct genetic and physical characteristics in different parts of the country. A voluntary scheme exists to help users identify and source suitable stock for native tree and shrub planting – see the Forestry Commission's guidance on *Seed Sources for Planting Native Trees and Shrubs in Scotland* (Forestry Commission Scotland, [2006](#)).

The native range of a hybrid animal or plant is defined as any locality within the native range of both parents of the hybrid animal or plant (section 14P (3) of the 1981 Act). Therefore, any location that is outwith the native range of one of the parents is outwith the native range for the hybrid. Where hybridisation is widespread in wild populations, morphological characteristics or molecular tests can be used to identify individuals that are considered to be of a native type. These test results should be reviewed by a recognised authority in the taxonomy of that species. SNH's specialist advisory staff can assist with this.

If the animal or plant is not of a subspecies, race or type that is indigenous to that place it is outwith its native range.

5 Defining native range

Some species are native to parts of Scotland but not others. For example stoats and weasels are native to the mainland but not to most islands. Pike and perch are native to water catchments in south west Scotland but have been introduced elsewhere. Distribution maps alone should not be relied upon to decide whether or not a location is within the native range of a particular species. Native range excludes locations:

- Where an animal or plant has been imported as a result of human actions, whether intentionally or otherwise; and
- Where a population has died out and the species is unable to re-colonise naturally.

5.1 Data sources

Native range must be defined by available records validated by an authoritative source. These should be published records but unpublished data from a recognised authority may be acceptable in some situations. The records should demonstrate clearly the current distribution of naturally occurring populations of the species. Records from locations where the species is thought to have been imported by humans, or where the population has died out and the species can no longer re-colonise naturally, should be excluded.

Some groups of species, such as vascular plants and birds, have accurate distribution atlases whereas records for other groups are often patchier. The absence of records in some areas may reflect low recording effort rather than absence of the species. However,

the presence of a species should not be inferred where there are no records. The location of historical records is often vague and interpretation may require expert judgement by a recognised authority on the species. SNH's specialist advisory staff can assist with this.

5.2 *Age of records*

The age of the records, and the period over which they are collected, may influence the interpretation of data. You should be cautious when interpreting the output of data sets collated over an extended period. Where possible, separate the records into different date ranges to provide as full a picture as possible of any trends in species location over time.

5.3 *Native range expansion*

Native range is dynamic. Some species expand their range naturally in response to climatic changes and availability of food or suitable habitat. Where this occurs, it is considered to be a natural extension of the species' native range, even though the underlying drivers such as land use or climate change may be linked to human activities. However, if the species is only present in a locality as a result of being imported through human actions, whether intentionally or otherwise, any subsequent expansion is considered to be outwith native range. Former natives whose range is expanding after a reintroduction project are still considered to be outwith their native range for the purposes of the 1981 Act.

5.4 *Mapping native range*

Mapping all the naturally occurring populations to calculate the extent of occurrence provides a useful approximation for native range. Locations should be excluded where: i) the population is thought to have been imported by humans; or ii) the population has died out and the species is unable to re-colonise naturally, because it is prevented from doing so by natural barriers to movement. The simplest form of mapping is to draw lines around known records to define the minimum area over which the species has been recorded (a 'minimum convex polygon'). However, this can be sensitive to outlying records and sampling effort and can skew estimates of range or distribution.

The IUCN recommends a more sophisticated polygon method which takes into account how the species uses the area (a 'utilisation' model). This helps to identify natural gaps in distribution between populations or sub-populations and, depending on the scale of the fragmentation, can determine whether native range is contiguous or not. Further information on this method is provided by JNCC's *Technical Note on Range Mapping* (JNCC, [2007](#)).

The ability to calculate distribution and range fragmentation will depend on the quality of data available. While some species may have sufficient data for this calculation, many will not. Whatever the method used, the results should be reviewed by a recognised authority on the species who can validate the interpretation based on expert knowledge and judgement. SNH's specialist advisory staff can assist with this.

Care should be taken when interpreting native range from distribution maps as these may include locations where the species has been imported by humans, or where the population has died out and the species is unable to re-colonise naturally. Some distribution maps may also infer species presence from suitable habitat. Annex 3 provides further advice on interpreting native range from distribution maps.

5.5 Scale and ability to disperse

Species distributions are seldom contiguous. Distribution maps often consist of small clusters and/ or widely scattered records making it difficult to determine whether a particular location is within the native range. That being the case, the species' potential for natural dispersal can be used to assess the likelihood of the site being colonised from the nearest known population. For example, a plant or insect with limited dispersal ability might only be able to move a few kilometres at a time, whereas wide-ranging birds, mammals and marine species might move 100km or more. There are no hard-and-fast rules about how far different species can disperse and clearly some can travel great distances without human assistance.

The dispersal ability of a species dictates the maximum distance that an individual is likely to be found from a known population. If the data quality is too poor to map native range accurately, dispersal ability can be used to assess how far native range extends beyond the nearest known naturally occurring population. **If the distance from the location to the nearest naturally occurring population is less than the species' dispersal ability, it is within native range, provided there are no natural barriers to movement.**

Although species with similar life history traits tend to have similar dispersal abilities, there is no 'one size fits all' solution to this question. In the absence of empirically derived values for dispersal ability, we recommend discussing the value with a recognised authority on that species. SNH's specialist advisory staff will be able to assist.

5.6 Barriers to movement

Native range must take account of natural barriers to movement. For example range polygons are usually clipped to the coastline so that the range of terrestrial species does not include marine areas and vice-versa. These natural barriers to movement are given here:

- | | |
|---------------------|---|
| Islands: | Land-based species find it difficult to cross significant expanses of water. For example, certain land mammals and plants that are native to mainland Scotland are considered to be outwith their native range on some of the islands. |
| Catchments: | Freshwater species find it difficult to cross land and salt water barriers between catchments or migrate upstream beyond naturally impassable water falls. For example, several obligate freshwater fish species are considered to be native to southern Scotland but are outwith their native range in other catchments, where they are thought to have been imported by humans. |
| Habitat Specialism: | Habitat specialists can find it difficult to cross large tracts of unsuitable habitat. Species that rely on naturally scarce and fragmented habitats may not colonise all suitable sites because of natural barriers in the landscape. |

Artificially constructed barriers to movement, such as dams, are not considered to affect the estimate of native range. Reintroducing fish or other freshwater species above such structures does not require a non-native species licence if it can be demonstrated that the species occurred naturally in that location before the dam was built. The same applies to removing man-made barriers to movement such as: easement of artificial barriers in rivers; restoring habitat networks; or providing wildlife crossings for transport infrastructure. However, removing barriers may facilitate the spread of an unwanted non-native species, which should be taken into account when planning such work.

Natural barriers to movement may be porous to certain species, for example land mammals may be capable of swimming a distance across open water and fish may be able to pass waterfalls under certain flow conditions. You should be cautious, therefore, when assessing a species' ability to overcome barriers to movement.

If the barrier is artificially constructed, and the species occurred naturally in that area before the barrier was built, the location beyond the barrier is within its native range. If the barrier is natural and impassable, and the species does not occur naturally beyond the barrier, the location beyond the barrier is outwith its native range.

Environmental conditions in Scotland have fluctuated over the last 10,000 years and the conditions that enabled species to colonise may no longer be prevalent. This is particularly the case for freshwater systems and islands. Populations of animals or plants that have become genetically isolated over a long period of time tend to develop differently from other populations and may be considered to be a separate subspecies, race or type. Moving individuals from one of these distinct populations to another water body or island is considered as a movement outwith its native range and would require a non-native species licence.

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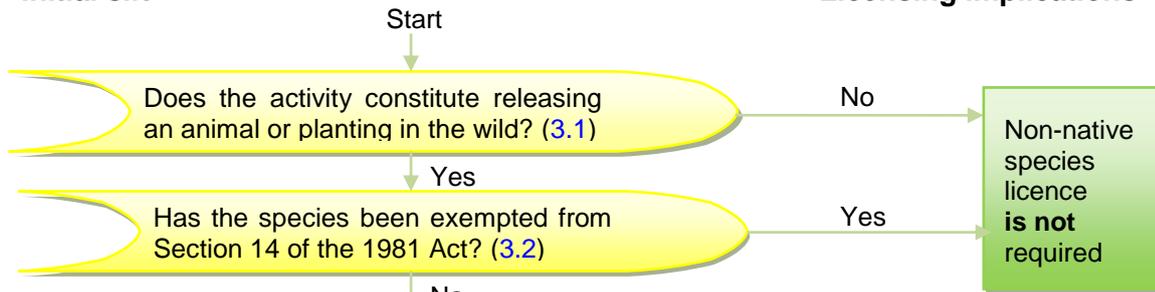
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Annex 1: Decision tree for assessing native range

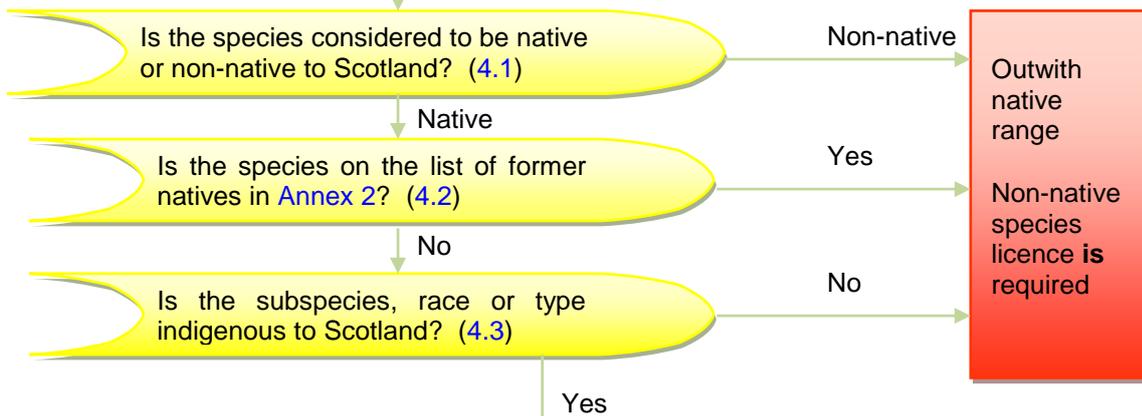
(Numbers in brackets refer to relevant sections in this guidance)

Initial sift

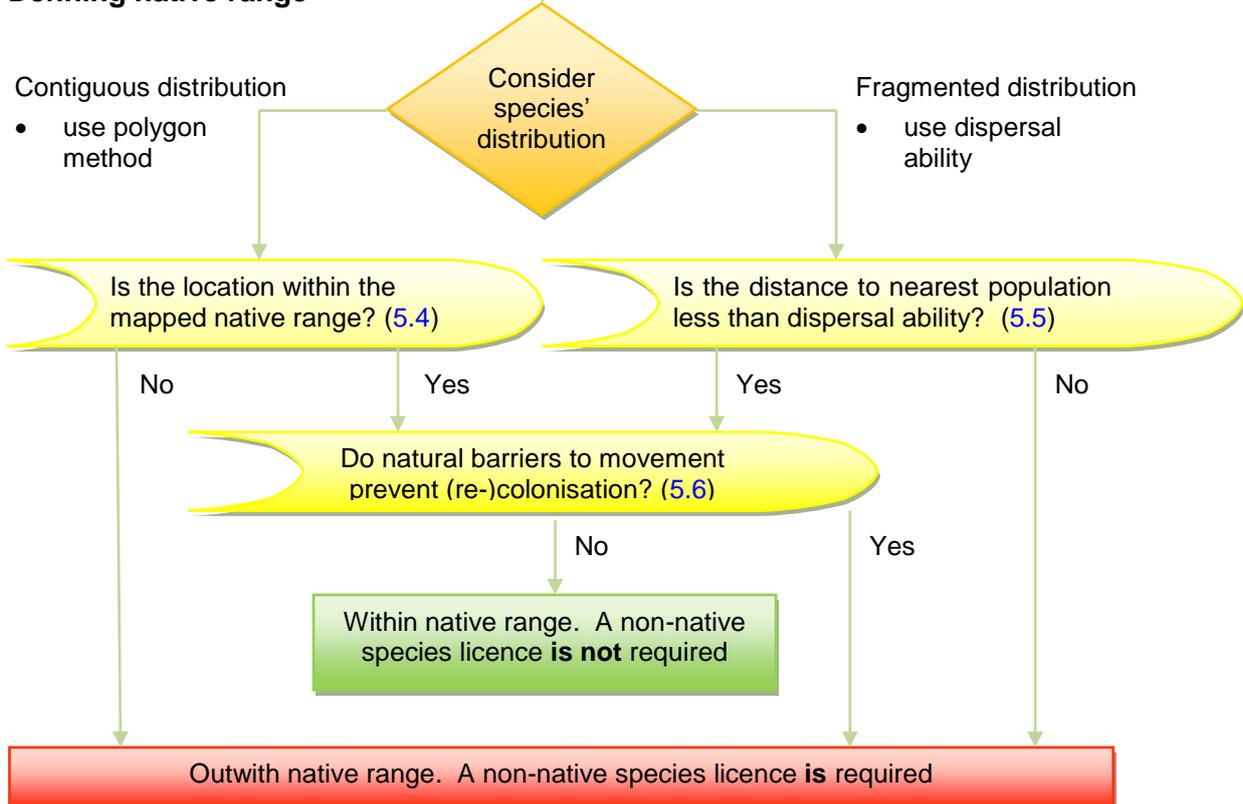
Licensing implications



Status in Scotland



Defining native range



Annex 2: Species considered to be ‘former natives’

‘Former natives’ are species that once were native in a location but the population has died out and the species no longer has the potential to re-colonise naturally. For the purposes of the 1981 Act former natives are considered to be outwith their native range and it is therefore an offence to release a former native without a licence. Once a former native has been reintroduced back into a locality, that locality does not become part of its native range, and further releases still require a licence.

For ease of reference, the list below contains animals and plants that were once native to Great Britain and which SNH considers to be former natives. **This list is not exhaustive**; it does not include species that are former natives in part of Scotland but still occur naturally in another part. Importantly, if a species is not on the list, this alone does not remove the need to consider whether it may be a former native in a given location. For example, the Vendace *Coregonus albula* is a type of fish that is a former native of two lochs in the south of Scotland despite still occurring in the Lake District nearby.

Definitions

Time scale The list includes former natives that have died out, between 10,000 years ago and the present day.

Geographical scale For ease of reference, this annex lists only former natives that have died out in Great Britain.

Exclusions This list does not include:

- Species that have never been recorded in Scotland.
- Species that are considered to be former natives in only part of Scotland, for example mammal populations that have died out on an islands or fish populations that have died out in a water body.
- Species considered as being on the edge of their native range that occur naturally from time to time.
- Species that formerly bred in Scotland but still occur naturally as non-breeders or in another part of their life cycle.
- Species that are considered to be globally extinct.

Table 1. List of species considered to be former natives

Common Name	Scientific Name
<i>Mammals</i>¹	
Wolf	<i>Canis lupus</i>
Brown Bear	<i>Ursos arctos</i>
Lynx	<i>Lynx lynx</i>
Wild Boar	<i>Sus scrofa</i>
Eurasian Elk	<i>Alces alces</i>
Eurasian Beaver	<i>Castor fiber</i>
Reindeer	<i>Rangifer tarandus</i>
Wolverine	<i>Gulo gulo</i>
Northern Vole	<i>Microtus oeconomus</i>
<i>Birds</i>²	
Western Capercaillie	<i>Tetrao urogallus</i>
White Stork	<i>Ciconia ciconia</i>
Red Kite ³	<i>Milvus milvus</i>
White-tailed Eagle	<i>Haliaeetus albicilla</i>
Northern Goshawk	<i>Accipiter gentilis</i>
Great Bustard	<i>Otis tarda</i>

¹ Handbook of Mammals of the British Isles (Harris & Yalden, 2008).

² [Scottish list of birds](#) (Scottish Ornithologists' Club).

³ Red Kites have been reintroduced into Scotland from Sweden, Germany and Spain.

<i>Fish</i> ⁴	
Vendace ⁵	<i>Coregonus albula</i>
<i>Plants</i>	
Borrer's hawkweed	<i>Hieracium borleri</i>
Cliva Hill hawkweed	<i>Hieracium hethlandiae</i>

⁴ Scotland's freshwater fish: ecology, conservation & folklore (Maitland, 2007).

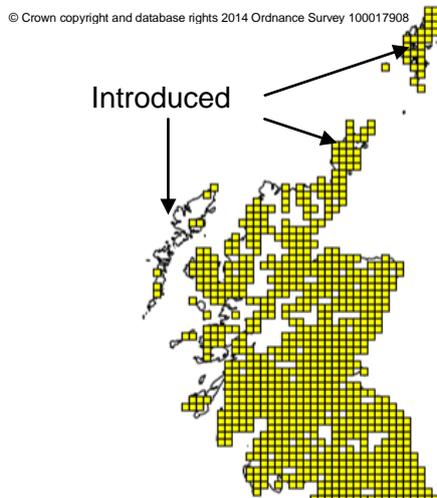
⁵ The Vendace died out in Scotland in the 1960s. Reintroduced populations from the Lake District have a distinctly different morphology and are therefore considered to be of a different type.

Annex 3: Interpreting native range from distribution maps

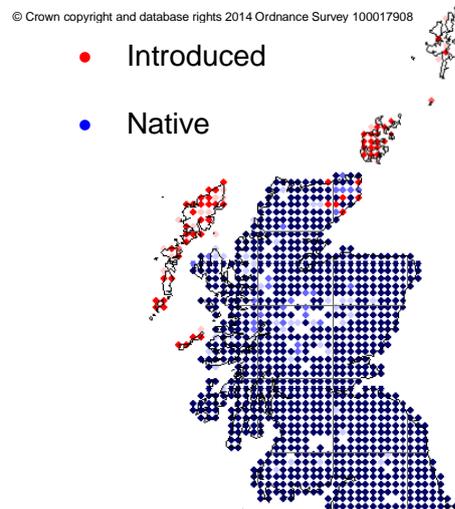
This annex provides further advice on interpreting native range from distribution maps:

1. Estimates of native range must exclude locations that humans have moved a species to.

Most distribution maps do not differentiate between the native and introduced range (see Map 1a for hedgehog). The exception is the 'New Atlas' for vascular plants (see Map 1b), which uses red and blue dots to distinguish between introduced and native populations.



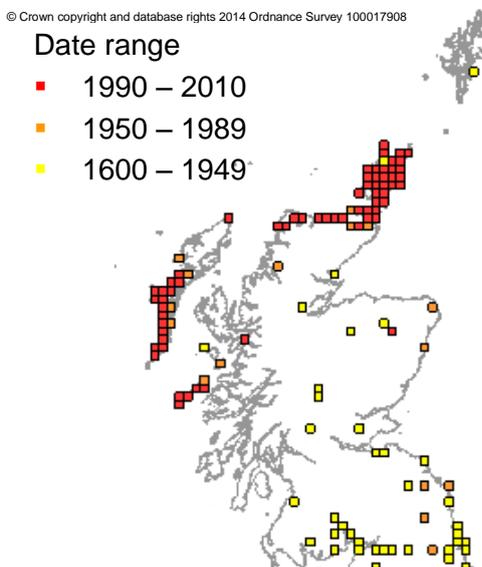
Map 1a. Hedgehog *Erinaceus europaeus*
Source: after Harris and Yalden (2008).



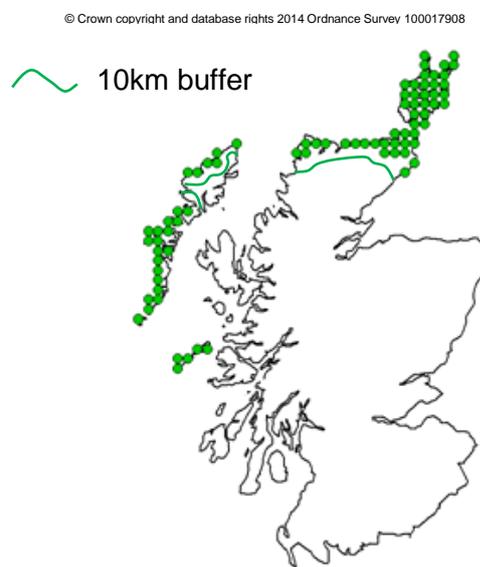
Map 1b. Gorse *Ulex europaeus*
Source: after Preston et al (2002).

2. Separate out records into different date ranges to provide as full a picture as possible of changes in distribution over time.

The Great Yellow Bumblebee *Bombus distinguendus* has suffered considerable range contraction since the 1950s (Map 2a). Rare bumblebee species appear to be unable to disperse regularly over distances greater than 10km (Lepais *et al*, 2010). To estimate native range a 10km buffer has been applied to records from 1990 onwards (Map 2b).



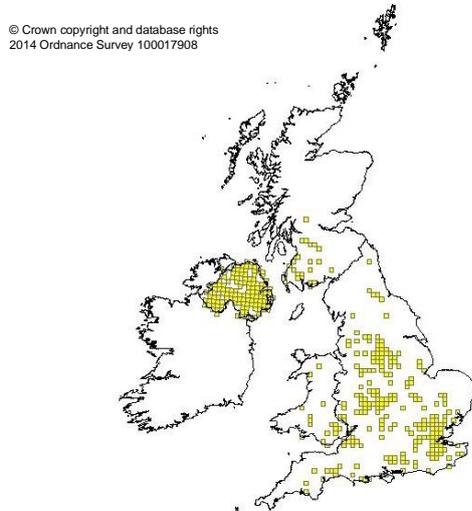
Map 2a. Historic distribution of *Bombus distinguendus*. Source: BWARS (2010).



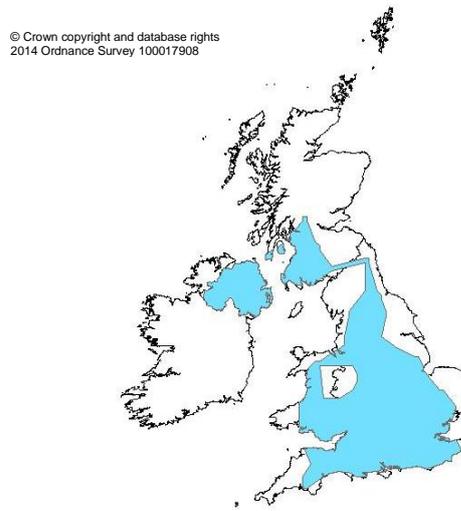
Map 2b. Native range map for *Bombus distinguendus*. Based on BWARS(2010).

3. Care should be taken when interpreting native range from incomplete datasets – presence of a species should not be inferred where records are absent.

For many species our knowledge of distribution is incomplete. Outlying records and patchy recording effort can skew estimates of native range, such as in the example below for Lysler’s Bat *Nyctalus leisleri*. Where records are patchy or ranges are fragmented it can be better to use dispersal ability and distance from the nearest naturally occurring population.



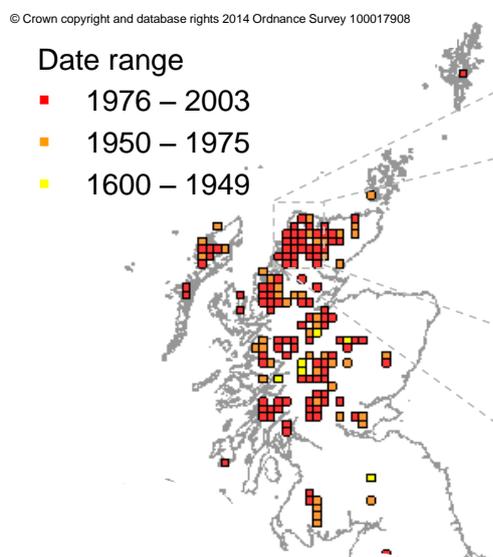
Map 3a. Distribution of *Nyctalus leisleri* in Great Britain. Source: after JNCC (2013).



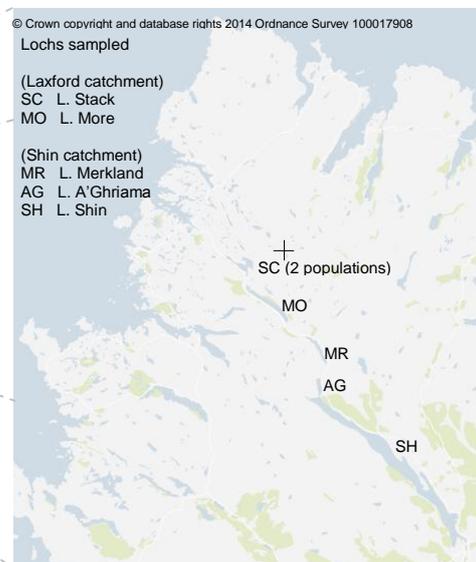
Map 3b. Range map for *N. leisleri* produced for Habitats Directive reporting (JNCC, 2013).

4. Native range should take account of taxonomy and natural barriers to movement.

Map 4a shows the distribution of Arctic Charr *Salvelinus alpinus* in Scotland. This anadromous fish colonised from the sea soon after the last ice age before becoming resident in freshwater lochs. This change in migratory behaviour created barriers to movement between lochs, even within the same river system. Map 4b shows populations in nearby lochs that have become genetically isolated over a long period of time (Wilson et al, 2004). These populations are considered to be different ‘types’ for the purposes of the 1981 Act.



Map 4a. Distribution of *Salvelinus alpinus* in Scotland. Source: after Davies et al (2004).



Map 4a. Nearby lochs with genetically distinct populations of *S. alpinus* (Wilson et al, 2004).