# Data on pathways of introduction and spread of invasive alien species of union and national concern

**SND-ID**: 2024-425. **Version**: 1. **DOI**: https://doi.org/10.5878/sgrc-yh67

### Download data

Jansson_Ebenhard_2024_IAS_Rapport_BilagaC_Dataset_Berakningar_ekologisk_effekt.tsv *(217.89 KB)*

Jansson_Ebenhard_2024_IAS_Rapport_BilagaC_Dataset_Inmatning_arter.tsv *(3.56 KB)*

Jansson_Ebenhard_2024_IAS_Rapport_BilagaC_Dataset_Inmatning_och_berakningar.tsv *(232.8 KB)*

Jansson_Ebenhard_2024_IAS_Rapport_BilagaC_Dataset.xlsx *(1.02 MB)*

### Associated documentation

README_Jansson_Ebenhard_2024.pdf *(90.39 KB)*

### Download all files

2024-425-1.zip *(~1.55 MB)*

### Citation

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### Creator/Principal investigator(s)

Camilla Jansson - Swedish University of Agricultural Sciences, Department of Urban and Rural Development

Torbjörn Ebenhard - Swedish University of Agricultural Sciences, Department of Urban and Rural Development

### Research principal

Swedish University of Agricultural Sciences - Department of Urban and Rural Development

### Principal's reference number

SLU.sol.2024.IÄ-16

### Description

The dataset was used to analyze the pathways of introduction and spread to and within Sweden for 101 invasive alien species, of which 88 are of Union concern (included in the European Union list of invasive alien species) and 13 are of national interest (selected by the Swedish Environmental Protection Agency). The geographical area being covered is Sweden's land territory, territorial water and economic zone.

The dataset contains actual and probable pathways that have been identified for each of the species. The information was collected from existing risk assessments in the European Union for species of Union concern and national risk analyses from Belgium, Denmark, Norway and Sweden. We have also consulted various databases, including Nobanis (European Network on Invasive Alien Species), CABI (Centre for Agriculture and Biosciences International), DAISIE (Delivering Alien Invasive Species

Inventories for Europe), GISD (Global Invasive Species Database), EPPO (European and Mediterranean Plant Protection Organization), EASIN (European Alien Species Information Network) and the SLU Species Information Centre. We have followed the CBD (Convention on Biological Diversity) pathways classification framework. This framework includes a total of 47 pathways divided into six main categories; Release in nature, Escape from confinement, Transport - contaminant, Transport - stowaway, Corridor, and Unaided. All but the first are unintentional pathways. The pathways that we have identified are not necessarily limited to those previously identified in various risk analyses or databases. We have identified all potential pathways based on whether the mechanism for transport is in place.

The analysis was performed for three different starting points of pathways; in a foreign country, in contained or confined use in Sweden, and in Swedish nature. The first two starting points may result in an introduction of an alien species into Swedish nature, whereas the third involves pathways of spread within Swedish nature. Pathways of deliberate introduction for contained use in Sweden, such as import, are not included in the analysis as we assume that these will not be permitted.

In the process of identification of priority pathways, the presence of each species at a starting point was considered. For starting points abroad, the species have always been considered as present. Among the 101 species, 56 occur in contained use in Sweden (including e.g. botanical and zoological gardens, private aquaria and gardens, aquaculture, research institutions and fur farms), and 40 species have been judged as being present in Swedish nature.

Given the presence of the species at a starting point, their ability to use the different pathways and to become established in Swedish nature and cause damage to Swedish nature was considered. The invasion potential and ecological effects of invasive alien species have been estimated in the risk analyses performed by the SLU Swedish Species Information Centre. The invasion potential is based on the expected time to extinction in Sweden, the geographical expansion speed, and ability of the species to colonize natural environments, whereas the estimate of ecological effects is based on the ecological, genetic and epidemiological effects on native species and natural environments. Seventeen species are not yet risk analyzed by the SLU Swedish Species Information Centre. The invasion potential and ecological effects of these species were estimated using available information.

Several analyses were performed to identify pathways in the current state and for two hypothetical scenarios in the future. The hypothetical scenarios were based on assumptions of increasing private trade in and keeping of listed invasive alien species, and increased possibilities for species to become established in Swedish nature due to climate change.

For more information, please see the Swedish description above.

**Data contains personal data**

No

**Language**

Swedish

**Data format / data structure**

Numeric

Text

**Species and taxons**

Alternanthera philoxeroides
Impatiens glandulifera
Lygodium japonicum
Callosciurus finlaysonii
Heracleum mantegazzianum
Andropogon virginicus
Lampropeltis getula
Channa argus
Neovison vison
Solenopsis geminata
Heracleum persicum
Asclepias syriaca
Herpestes javanicus
Rubrivena polystachya
Celastrus orbiculatus
Baccharis halimifolia
Ehrharta calycina
Cabomba caroliniana
Myocastor coypus
Pueraria montana var. lobata
Gambusia affinis
Xenopus laevis
Persicaria perfoliata
Phedimus spurius
Hakea sericea
Reynoutria japonica
Lupinus nootkatensis
Salvinia molesta
Nyctereutes procyonoides
Ondatra zibethicus
Acacia saligna
Cotula coronopifolia
Sciurus niger
Humulus japonicus
Heracleum sosnowskyi
Phedimus hybridus
Rosa rugosa
Microstegium vimineum
Arthurdendyus triangulatus
Wasmannia auropunctata
Tamias sibiricus
Parthenium hysterophorus
Acridotheres tristis
Elodea nuttallii
Pycnonotus cafer
Morone americana
Solidago canadensis
Pseudorasbora parva

Reynoutria sachalinensis
Gunnera tinctoria
Solenopsis richteri
Perccottus glenii
Gambusia holbrooki
Lysichiton americanus
Pistia stratiotes
Ameiurus melas
Fundulus heteroclitus
Solidago gigantea
Faxonius virilis
Ailanthus altissima
Ludwigia peploides
Cenchrus setaceus
Cortaderia jubata
Gymnocoronis spilanthoides
Reynoutria x bohemica
Plotosus lineatus
Threskiornis aethiopicus
Eriocheir sinensis
Sciurus carolinensis
Limnoperna fortunei
Procambarus fallax f. virginalis
Vespa velutina nigrithorax
Pacifastacus leniusculus
Myriophyllum heterophyllum
Alopochen aegyptiaca
Prosopis juliflora
Solenopsis invicta
Lithobates catesbeianus
Lespedeza cuneata
Oxyura jamaicensis
Rugulopteryx okamurae
Procyon lotor
Nasua nasua
Eichhornia crassipes
Axis axis
Myriophyllum aquaticum
Callosciurus erythraeus
Faxonius limosus
Procambarus clarkii
Lepomis gibbosus
Faxonius rusticus
Muntiacus reevesi
Hydrocotyle ranunculoides
Ludwigia grandiflora
Lagarosiphon major
Trachemys scripta
Cotoneaster divaricatus
Lupinus polyphyllus

Corvus splendens
Triadica sebifera
Cardiospermum grandiflorum

**Data collection 1**

- Mode of collection: Compilation/Synthesis
- Description of the mode of collection:
  We compiled relevant information of each of the 101 invasive alien species in species factsheets. The factsheets include brief information of the species' native and alien distribution, habitat, status and distribution in Sweden with the number of observations in Swedish nature, known and potential pathways of introduction and spread, probability of establishment, known and potential effects on biological diversity, and measures to prevent and control the species.

  We presented pathways of introduction and spread from three different classification frameworks; CBD (Convention on Biological Diversity), Nobanis (European Network on Invasive Alien Species) and CABI (Centre for Agriculture and Biosciences International). Those pathways that have been identified in Swedish risk analyses are presented in three categories; import for contained or confined use in Sweden, introduction to Swedish nature, and spread within Swedish nature. Note that pathways of deliberate introduction for contained or confined use in Sweden, such as import, are not included in the pathway analysis since we assume that these will not be permitted.

  The information was collected from existing risk assessments in the European Union for species of Union concern and national risk analyses from Belgium, Denmark, Norway and Sweden. The SLU Swedish Species Information Centre has performed risk analyses on a large number of invasive alien species, of which 84 species are included in our pathway analysis. We have also consulted various databases, including Nobanis, DAISIE (Delivering Alien Invasive Species Inventories for Europe), GISD (Global Invasive Species Database), CABI, EPPO (European and Mediterranean Plant Protection Organization), EASIN (European Alien Species Information Network) and the SLU Swedish Species Information Centre.

  In the pathway analysis, we have followed the CBD pathways classification framework. This framework includes a total of 47 pathways divided into six main categories; Release in nature, Escape from confinement, Transport - contaminant, Transport - stowaway, Corridor, and Unaided. All but the first are unintentional pathways. The same classification framework is used in the Swedish risk analyses performed by the Swedish Species Information Centre. Based on the information in our factsheets, we identified actual and potential pathways of introduction and spread for each of the species.
- Time period(s) for data collection: 2022-08-01 – 2023-02-28
- Data collector: Swedish University of Agricultural Sciences
- Source of the data: Other

**Geographic spread**

Geographic location: Sweden

**Responsible department/unit**

Department of Urban and Rural Development

**Commissioning organisation**

Swedish Environmental Protection Agency

### Funding

- Funding agency: Swedish Environmental Protection Agency


### Research area

Ecology (Standard för svensk indelning av forskningsämnen 2011)


### Keywords

Risk analysis, Invasion biology, Biodiversity, Ecological impact, Invasive species, Species invasion, Invasive alien species, Climate changes, Ecological effect, Pathways, Invasive alien species, Invasion potential


### Publications


Jansson, C., & Ebenhard, T. (2024) Spridningsvägar för invasiva främmande arter av unionsbetydelse och nationell betydelse - en sammanfattning : baserad på rapporten Spridningsvägar för invasiva främmande arter av unionsbetydelse och nationell betydelse. SLU Centrum för biologisk mångfald, SLU. https://doi.org/10.54612/a.12ugjp4gu9
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https://doi.org/10.54612/a.2ctp95l6u6
**DOI:** https://doi.org/10.54612/a.2ctp95l6u6


### Accessibility level

Access to data through SND
Data are freely accessible

### Use of data

Things to consider when using data shared through SND



### Versions

Version 1. 2024-12-03

### Contacts for questions about the data


Camilla Jansson

camilla.jansson@slu.se

Torbjörn Ebenhard

torbjorn.ebenhard@slu.se

SLU Arkiv

arkiv@slu.se


### This resource has the following relations

Is derived from Artsdatabanken - Fremmedartslista 2018

Is derived from BFIS (Belgian Forum on Invasive Species) - Risk analyses

Is derived from BFIS (Belgian Forum on Invasive Species) - Species lists

Is derived from CABI (Centre for Agriculture and Biosciences International) - Invasive species compendium

Is derived from DAISIE (Delivering Alien Invasive Species Inventories for Europe) - Species search

Is derived from EPPO (European and Mediterranean Plant Protection Organization) - Pest risk analyses

Is derived from EPPO (European and Mediterranean Plant Protection Organization) - Datasheets

Is derived from European Commission - Risk assessments of invasive alien species of Union concern

Is derived from GISD (Global Invasive Species Database) - Species accounts

Is derived from NOBANIS (European Network on Invasive Alien Species) - Search alien species

Is derived from NOBANIS (European Network on Invasive Alien Species) - Fact sheets

Has metadata SLU Swedish Species Information Centre - Dyntaxa

Is derived from SLU Swedish Species Information Centre - Riskanalyser

Is derived from SLU Swedish Species Information Centre - Artfakta

Has metadata IUCN (International Union for Conservation of Nature) - Guidance for interpretation of the CBD categories of pathways for the introduction of invasive alien species

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DataCite

DDI 2.5

DDI 3.3

DCAT-AP-SE 2.0

JSON-LD

PDF

Citation (CSL)

File overview (CSV)

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