TRANSLOC

PLANT AND ANIMAL CONSERVATION TRANSLOCATION DATABASE

Definitions

Definitions of key terms used in Transloc

Definitions of data fields and possible options for fields with fixed options for the population datafields

1. Definitions of key terms used in Transloc

Population

We use a definition of the population from population biology theory, i.e., a group of organisms of the same species that live together in a particular geographic area, with the capability of interbreeding or social interactions. Given what we know about the species biology, the landscape structure and the geographical distance between separated groups of individuals, if we believe that gene flow due to the dispersal of individuals or diaspores (e.g. seeds, fruits) or gametes (e.g. through pollen) between these groups probably occurs only on few occasions per generation, then we consider these groups of individuals as distinct populations. It might be difficult in some cases to decide whether different groups of individuals should be pooled into a single population. In practical terms, patches of plants separated by tens of metres can generally be grouped together into a single population when the barriers to pollen or seed dispersal between patches are weak.

Population viability

Viability is a concept from population dynamics theory. Given the probabilistic nature of individual survival, growth, reproduction and dispersal, the persistence or extinction of a population in the future must be foreseen with probabilistic analysis. Sophisticated population viability analysis using demographic rates from individual monitoring and matrix models can be conducted to estimate extinction probabilities over a given time period (Beissinger and McCullough 2002). A population is then considered viable if its probability of extinction over a time period in the future is below a given threshold (e.g. less than 5% over 100 years). Practically, relevant demographic data sets allowing such sophisticated population viability analysis are scarce, and viability is often estimated using other indicators, such as those used by IUCN to classify species in Red List categories (A to D criteria in IUCN 2001). See Robert et al. (2015) for the use of red list criteria in the context of translocations.

Translocations, conservation translocations, conservation-driven translocations and mitigation-driven translocations

Translocations are human-induced movements of living organisms into natural or semi-natural ecosystems (IUCN/SSC 2013).

Conservation translocations have the objective to improve the conservation status of a species, locally or globally, or to restore natural ecosystem functions or processes (IUCN/SSC 2013).

Conservation-driven translocations are initiated by conservationists (researchers or practitioners) with the conservation objective as a motivation at the origin of the translocation project. They are therefore necessarily conservation translocations as defined by the IUCN.

Mitigation-driven translocations consist of moving individuals threatened by a change in land use. These translocations have emerged and become widespread in many countries with the application of legal procedures for protected species under the mitigation hierarchy (avoidance, minimization, rehabilitation/restoration, offset; BBOP 2012). The initial motivation for mitigation-driven translocations is to comply with legal procedures, but such translocations may be conservation translocations (sensu IUCN) and be included in the Transloc database if they have incorporated a population viability objective (Julien et al. 2023).

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2. Definitions of data fields and possible options for fields with fixed options for the population datafields

2.1. Upper part

Counter [filled in automatically].

Automatic counter, from the earliest population entered in the database to the latest.

Population code [filled in automatically].

Each translocated population is identified by a unique code, generated automatically, formed by the first 4 letters of the genus name followed by the first 4 letters of the species name, a hyphen, and a number from 001 to 999.

2.2. Basic information

Genus / Species / Subspecies [3 different fields].

The genus, species and (eventually) subspecies names of the translocated taxon, as they appear in the Global Biodiversity Information Facility (https://www.gbif.org/), except in cases where the synonymy between the names used in the documents describing the translocation and the GBIF accepted names is unclear.

Alternative taxonomic names used in documents about this translocated population

Precision given in cases where taxonomic names used in documents about the translocated population differ from GBIF accepted names. (Do not list all the synonyms of the taxon found in the whole literature!).

Country

Country where the centre of the translocated population was located on date of last information, according to geonames nomenclature (https://www.geonames.org/).

Year of first RST if known precisely

Year of the first release / sowing / transplantation intervention if known precisely.

Year of first RST- lower limit

Lower limit of the interval of years of the first RST, if the year of the first RST is not known precisely.

Year of first RST – upper limit

Upper limit of the interval of years of the first RST, if the year of the first RST is not known precisely.

2.3. Information for data management by administrators

Population code

The same as above.

Creator name [filled in automatically]

Name of the person (admin or contributor) who 'created' the population in the database.

Creation date [filled in automatically]

Date of creation of the population in the database.

Contributors [filled in automatically]

List of contributors who have entered information about this population into the database.

Contribution dates [filled in automatically]

List of contribution dates.

Validators [filled in automatically]

List of administrators who validated the contributions by contributors.

Validation dates [filled in automatically]

List of validation dates.

Latest modification [filled in automatically]

Indicates the most recent date on which the data for this population was modified (by a contributor or admin).

Latest data search by a Transloc admin [filled in by admins only]

Last year during which information about this translocated population was sought by any administrator of the database.

Initial information

Specifies how the initial information about this translocated population was collected.

List of possible answers:

- *Web query*: directly from a query on an internet search engine, using keywords focused on species translocations.

- *Inquiry*: from an interview or a request for information (in a quite formal context), specifically seeking information on the occurrence of translocations, with a representative of a public institution, association, private company, etc., or a private individual acting as stakeholder in translocation projects.

- *Personal communication*: from a discussion out of the formal context described above.

- *Citation*: from a scientific article or any other document (poster, report, web page…), obtained differently from a web query described above, which topic was not necessarily this particular translocated population, but which suggested its existence (e.g., a review paper on translocations, an article on another topic, a naturalist or conservation web page…).

- *Personnal involvement*: because the contributor or administrator entering the data has been personally invovled in the translocation.

- *Other*.

Most recent data

Year of the most recent information available in the database about this translocated population.

Data providers

The fields correspond to a list of people or organisations that have provided data on this population.

Potential sources of additional information [filled in by admins only]

Potential sources (contacts, websites, periodicals…) of information NOT YET included in the database.

Metapopulation [filled in automatically]

If the translocated population has been an element of a metapopulation made of other translocated populations recorded in the database, this field contains a code, unique to any metapopulation, formed by the first 4 letters of the genus name followed by the first 4 letters of the species name, a hyphen, 'meta-', and a number from 001 to 999. For example: Dianpont-meta-001 is a metapopultion of several translocated populations of *Dianthus pontederae*.

Community [filled in automatically]

If the translocated population has been an element of a community of several translocated species recorded in the database, this field contains a code, unique to any community, formed by 'commun-', the three-letter country code defined in ISO 3166-1 (https://www.iso.org/obp/ui/#search), a hyphen, a number from 001 to 999, and eventually another hyphen followed by the name of the location. For example: Commun-Hun-001-Meggyes is a community of several translocated populations in Hungary at the location Meggyes.

Referenced

Specifies whether there is at least one referenced document (with a DOI) containig at least the species name, the country and the year of the first release / sowing / transplantation (or an interval of years).

List of possible answers:

- *Referenced*: a reference with a DOI exists

- *No reference found*: no reference has been found, but there is a reasonable possibility of finding one

- *Not referenced*: there is very little chance that a document with a DOI exists (at the date of the last information entered in the database for this population).

General remarks

Any useful general remark not included elsewhere in the database about the translocated population.

2.4. Context

Organisations and programmes

These fields correspond to a list of the organisations (e.g., public institutions, associations, private companies…) and programmess (e.g., LIFE programmes) that have been involved in the translocation project.

Translocation driver

Specifies the initial motivation behind the translocation project of this population.

List of possible answers:

- *Conservation-driven*: The translocation project arose from a targeted conservation motivation, i.e. the desire to maintain or improve the viability of a population, the conservation status of a taxon at a given scale (local, regional, national, global), or the desire to restore a particular community or ecosystem.

- *Mitigation-driven*: The translocation project, although it does have a conservation objective (otherwise the translocated population in question should not appear in the database), has its origins in the

application of legal or regulatory obligations (in particular as a measure to compensate for or accompany development work).

- *Unclear*.

Species protection status

Specifies whether, at the time the project was set up, the translocated taxon benefited from any European, national or regional protection status.

List of possible answers:

- *European*

- *National*

- *Regional*

- *None*

Rescue

Specifies whether the translocation has involved individuals living in a natural site planned to be altered in the near future (due to, i.e., a construction project), so that (at least some of) the translocated individuals were intended to die sooner if not translocated.

List of possible answers:

- *Yes*

- *No*

Extinction year previous pop (known precisely)

Only in the case of reintroduction, this field gives the extinction year of the population that occurred in the hosting site of the translocated population. 'NA' if the translocation is not a reintroduction.

Lower limit of the year of prior extinction, if uncertain

Only in the case of reintroduction, this field gives the lower limit of the extinction year of the population that occurred in the hosting site of the translocated population, when the exact year is not known.

Upper limit of the year of prior extinction, if uncertain

Only in the case of reintroduction, this field gives the upper limit of the extinction year of the population that occurred in the hosting site of the translocated population, when the exact year is not known.

Direct drivers

In the case where the translocated taxon has suffered from the decline of a number of populations at a large scale, and/or a specific decline of one population, or group of populations (see 'Scale'), these fields list the habitat changes that have certainly or likely lowered demographic rates, i.e., individual survival, growth or fecundity and that have consequently led to a deterioration of the niche/habitat match, at the

specified scale. These direct drivers can be seen as proximate causes of population decline from the point of view of the declining populations.

List of possible answers:

- *Problematic competitor, predator or parasite*: Decrease in one or several demographic rates due to the arrival in the habitat or the increase of the density of organisms or viruses directly impacting the focus organism as competitors, predators or parasites (they may include humans).

Example: climbers using cliff microsites (rock clefts) as a resource for their feet, hands, and climbing equipment, then decreasing this resource for cliff-dwelling species.

- *Pollution*: Decrease in one or several demographic rates due to an excess of material, chemical, or nutrients, whatever the remote cause of this excess, directly impacting the focus organism.

- *Change in climate patterns*: Decrease in one or several demographic rates due to a tendency of climatic variables either to change towards means outside of the evolutionary experience of the focus organism or to fluctuate outside of previous ranges of variation (resulting or not resulting from increased atmospheric greenhouse gases), which directly affects the organism.

- *Change in other environmental variables*: Decrease in one or several demographic rates due to a tendency of another environmental variable affecting populations either to change towards new means or to fluctuate outside previous ranges of variation. This can be, for example, a change in the density of a mutualistic species (pollinating insect…), a change in the frequency of floods or fires for species living in habitats regularly subject to these events, etc.

- *Habitat loss*: Decrease in most demographic rates due to a major change in the habitat that completely disrupt the niche/habitat match. This habitat loss can be either sudden (e.g., a fire in a habitat not regularly subject to fires) or slow (e.g., habitat loss due to progressive vegetation succession) It can be due to human activities (e.g., a habitat destroyed for the construction of a road or completely modified for agriculture, or following abandonment of agriculture or grazing…) or to natural events (e.g., hurricanes, fires, lava flow…); see underlying factors for the description of remote causes.

- *Not applicable*: the translocated taxon has not suffered from the decline of a number of populations at a large scale, and/or a specific decline of one population, or group of populations.

Underlying factors

In the case where the translocated taxon has suffered from the decline of a number of populations at a large scale, and/or a specific decline of one population, or group of populations (see 'Scale'), these fields list the factors that have been likely or certainly responsible for the direct drivers altering population demographic rates. These factors are underlying the habitat changes from the point of view of declining populations and can thus be seen as more remote compared to the direct drivers.

Definitions are close to the ones of the CMP Direct Threats Classification 2.0 (http://cmp-openstandards.org/tools/threats-and-actions-taxonomies/, see also Salafsky et al. 2008), but some categories do not appear in underlying factors (displaced to direct drivers) or do appear but with a modified definition.

List of possible answers:

- *Residential and commercial development*: Human settlements or other non-agricultural land uses with a substantial footprint. These are threats tied to a defined and relatively compact area, which distinguishes them from those in "Transportation & Service Corridors" which have a long narrow footprint, and "Human

Intrusions & Disturbance" which do not have an explicit footprint. Note that we can use standard land-cover classifications to assess the stresses delivered by these direct threats. These settlements include housing & urban areas (urban areas, suburbs, villages, vacation homes, shopping areas, offices, schools, hospitals), commercial & industrial areas (manufacturing plants, shopping centers, office parks, military bases, power plants, train & ship yards, airports), tourism & recreation areas (ski areas, golf courses, beach resorts, cricket fields, county parks, campgrounds).

- *Agriculture and aquaculture*: Threats from farming and ranching as a result of agricultural expansion, intensification or practices; includes silviculture, mariculture and aquaculture. The threats may result from the conversion of land to agricultural use (farms, plantations, silviculture, vineyards, fish ponds on farms, articficial shellfish or algual beds, etc.) OR from the use of agrochemicals OR from effluents from agricultural, silivicultural, and aquaculture systems (different from CMP threat definitions).

- *Energy production and mining*: Threats from production of non-biological resources. The threats may result from oil & gas drilling, mining and quarrying, energy production from geothermy, solar or wind energy equipment, dams for hydro power…

- *Transportation and service corridors*: Threats from long, narrow transport corridors and the vehicles that use them including associated wildlife mortality. This includes transportation corridors outside of human settlements and industrial developments: roads and railroads, utility and service lines, shipping lanes, flight paths...

- *Biological resource use*: Threats from consumptive use of wild biological resources including deliberate and unintentional harvesting effects; also persecution or control of specific species. Consumptive use means that the resource is removed from the system or destroyed. These threats in the class can affect both target species (harvest of desired plant or animal species) as well as "collateral damage" to non-target species (e.g. a butterfly threatened by harvesting of the host plant of its larvae). Persecution/control involves harming or killing species because they are considered undesirable. The threats include hunting & collecting terrestrial animals, gathering terrestrial plants, logging & wood harvesting, fishing & harvesting aquatic resources…

- *Human intrusions and disturbance*: Threats from human activities that alter, destroy and disturb habitats and species associated with non-consumptive uses of biological resources or habitats. Non-consumptive use means that the resource is not removed - multiple people can use the same resource (for example, trampling, rock clibing). These threats typically do not permanently destroy habitat except perhaps in extremely severe manifestations. These threats include recreational activities (off-road vehicles, motorboats, jet-skis, snowmobiles, ultralight planes, dive boats, whale watching, mountain bikes, hikers, birdwatchers, skiers, pets in recreational areas, temporary campsites, caving, rock-climbing), war, civil unrest & military exercises, work & other activities (people spending time in or traveling in natural environments for reasons other than recreation or military activities)

- *Natural system modifications*: Threats from actions that convert or degrade habitat in service of "managing" natural or semi-natural systems, often to improve human welfare. This category deals primarily with changes to natural processes such as fire, hydrology, and sedimentation, rather than land use. Thus it does not include threats relating to agriculture (which should be under Agriculture & Aquaculture), or infrastructure (Residential & Commercial Development and Transportation & Service Corridors). These threats include fire & fire suppression, dams & water management / use (except for hydro power, see Energy production and mining), other ecosystem modifications (land reclamation projects, rip-rap along shoreline, mowing grass, tree thinning in parks, beach construction, removal of snags from streams), removing / reducing human maintenance (lack of mowing of meadows, reduction in controlled burns, lack of indigenous management of key ecosystems, ceasing supplemental feeding of condors, abandonment of grazing…).

- *Introduction of alien invasive*: Threats from the introduction of non-native plants, animals, pathogens/microbes, or genetic materials that have or are predicted to have harmful effects on biodiversity following their introduction, spread and/or increase in abundance or virulence. Problematic native species ARE NOT included in these threat (different from CMP threat classification);

- *Global climate change* (from increased atmospheric greenhouse gases): Threats resulting from increased atmospheric greenhouse gases like CO2 (different from CMP direct threat classif).

- *Other factor unlinked (or weakly linked) to human activities*: Extrinsic threat from volcanic eruptions, tsunamis, natural fire, or intrinsic threat due to reproductive system of the species, body size…, that threaten the species even in the lack of any human threat.

- *Not applicable*: the translocated taxon has not suffered from the decline of a number of populations at a large scale, and/or a specific decline of one population, or group of populations.

Scale

Specifies the scale of action of the direct drivers and underlying factors.

List of possible answers:

- *Large*: Indicates that the specified direct driver or underlying factor is a likely cause of decline of a number of populations of the translocated taxon over a geographic scale larger than the population scale or larger than the scale of the group of populations in the case of populations close together in a restricted geographical area (typically within 1 km^2).

- *Small*: Indicates that the specified direct driver or underlying factor is a likely cause of decline of the specific population, or group of populations in the case of populations close together in a restricted geographical area (typically within 1 km^2), involved in the translocation. These population or group of populations can be either from the hosting site, in the case of reintroduction or reinforcement, or from the source location of the biological material that has been translocated in situations where this location was the cause of concern resulting in the translocation.

- *Not applicable*: the translocated taxon has not suffered from the decline of a number of populations at a large scale, and/or a specific decline of one population, or group of populations.

Level of organisation of interest

Specifies whether the translocation was community-centred, or species-centred, or both.

List of possible answers:

- *Species-centred*: Indicates that the purpose of the translocation is centred on the translocated species (to obtain a viable population of this species).

- *Community-centred*: Indicates that the purpose of the translocation is centred on the community (to obtain a community of which this species is a component).

- *Both*: Indicates that the purpose of the translocation is centred both on the community (to obtain a community of which this species is a component) and on the species (it has a particular interest beyond being a component of the community).

Justifications

Specifies the justifications of setting up the translocation project.

List of possible answers:

- *Cultural*: To obtain a viable population that will provide a cultural service within the meaning of the Millenium Ecosystem Assessment (2005).

- *Provisionning*: To obtain a viable population that will provide a provisionning service within the meaning of the Millenium Ecosystem Assessment (2005).

- *Regulation*: To obtain a viable population that will provide a regulation service within the meaning of the Millenium Ecosystem Assessment (2005).

- *Support*: To obtain a viable population that will provide a support service within the meaning of the Millenium Ecosystem Assessment (2005).

- *Biodiversity conservation*: To obtain a viable population because it is an element of biodiversity, and that biodiversity is given a value for utilitarian, scientific, moral, ethical, or philosophical reasons.

- *Experimental*: the population has been translocated for experimental purposes (e.g., to understand the genetics of adaptation, to test methods of sowing, transplanting, etc.).

Nota bene: The implementation of the translocation cannot have an experimental justification for only justification. If so, it does not appear in the database. To appear in the base, the will to generate a viable population is necessary.

Main justification

Distinguishes, if necessary, between the main justifications ("checked" box) and the secondary justifications ("unchecked" box) for implementing the translocation project.

Details about justifications

Field which gives possible details on the justifications indicated in the 'Justification' field.

Precise program objectives

This field possibly specifies the objectives of the project as described in the documents referring to it. These goals must be more precise than 'reintroducing the population'. For example: 'to have a population still present after 2 years' or 'to obtain reproducing individuals', etc.

Remarks about context

Any useful remark not included elsewhere on the origin and the context of the translocation project.

1.5. Type/Phase

Translocation type (Commander et al. 2018)

Specifies the type of translocation following the classification of Commander et al. (2018): Commander, L. E., Coates, D. J., Broadhurst, L., Offord, C. A., Makinson, R. O., & Matthes, M. (2018). *Guidelines for the translocation of threatened plants in Australia* (3rd éd.). Australian Network for Plant Conservation..

List of possible answers:

- *Reinforcement*: translocation of individuals added to an existing population.

- *Reintroduction*: translocation of individuals to a site where a population of the taxon was known and from which it has gone extinct.

- *Reintroduction or introduction*: when it is one of the two possibilities without being able to say which of the two.

- *Introduction*: translocation of individuals to a site that the taxon, to our knowledge, has not occupied before, and which was within the extent of occurrence of the taxon at the time of the translocation (for a definition of the extent of occurrence, see UICN 2001).

- *Introduction or assisted migration*: when it is one of the two possibilities without being able to say which of the two.

- *Assisted migration*: translocation of individuals to a site that the taxon, to our knowledge, has not occupied before, and which was outside the extent of occurrence of the taxon at the time of the translocation.

- *Anything except reinforcement*: when it is not possible to say more.

Translocation type (IUCN/SSC 2013)

Specifies the type of translocations following IUCN categories: IUCN/SSC. (2013). Guidelines for Reintroductions and Other Conservation Translocations. Version 1.0. IUCN Species Survival Commission.

List of possible answers:

- *Reinforcement*: “the intentional movement and release of an organism into an existing population of conspecifics” (see IUCN/SSC 2013).

- *Reintroduction*: “the intentional movement and release of an organism inside its indigenous range from which it has disappeared” (see IUCN/SSC 2013).

- *Assisted colonisation*: “the intentional movement and release of an organism outside its indigenous range to avoid extinction of populations of the focal species” (see IUCN/SSC 2013).

- *Ecological replacement*: “the intentional movement and release of an organism outside its indigenous range to perform a specific ecological function” (see IUCN/SSC 2013).

Clustering

Specifies whether the translocated population entered in the database is a grouping of at least two entities considered separately in the documents describing it.

List of possible answers:

- *Yes*

- *No*

Separation

Specifies whether the translocated population as entered into the database is a separate entity from a larger group considered as a population in the documents describing it.

List of possible answers:

- *Yes*

- *No*

Multi-site

Specifies whether at least one additional population of this taxon has been translocated the same year in the same region in the same project.

List of possible answers:

- *Yes*

- *No*

Multi-species

Specifies whether at least one additional taxon has been translocated the same year in the same particular site.

List of possible answers:

- *Yes*

- *No*

Year of first RST if known precisely [filled in automatically]

As in 'BASIC INFORMATION'

Year of first RST- lower limit [filled in automatically]

As in 'BASIC INFORMATION'

Year of first RST – upper limit [filled in automatically]

As in 'BASIC INFORMATION'

Year of last RST

Year of the last release / sowing / transplantation intervention if known precisely.

Year of first RST- lower limit

Lower limit of the interval of years of the last RST, if the year of the last RST is not known precisely.

Year of first RST – upper limit

Upper limit of the interval of years of the last RST, if the year of the last RST is not known precisely.

Program phase

Specifies the phase at which was the translocation project at the time of the most recent information available in the database (refer to 'Most recent data').

List of possible answers:

- *Ongoing*: at the time of the most recent information available in the database, some interventions (releases/sowings/transplantations) had already taken place but others were planned later.

- *Monitoring post-interventions*: at the time of the most recent information available in the database, all planned interventions had already taken place and the translocated population was under monitoring (not necessarily every year).

- *Unknown post-interventions*: at the time of the most recent information available in the database, all planned interventions had already taken place, and it was unknown whether the translocated population was under monitoring.

- *Stopped*: at the time of the most recent information available in the database, all planned interventions had already taken place, and it was quite clear that the translocated population was not monitored anymore.

Metapopulation [filled in by admins only]

As in 'INFORMATION FOR DATA MANAGEMENT BY ADMINISTRATORS'

Community [filled in by admins only]

As in 'INFORMATION FOR DATA MANAGEMENT BY ADMINISTRATORS'

Translocation type remarks

Any useful remark not included elsewhere on the type or phase of the translocation project.

1.6. Location

This tab gives information on the location of the translocated population. There is an approximate location, available to any contributor, and an accurate location, visible only if declared not confidential. The approximate location gives the country and, when available, the region (or first administrative division), the province (or second administrative division), and, generally, the municipality. In some cases when it seemed more relevant or useful, the name of the municipality is replaced by the name of a natural park or

reserve, of an island, a cape, a peak, or a lake. The location points in the public map show the center of the municipality (or park, island…). Both approximate and accurate locations are relative to the location of the center of the translocated population at the time of the most recent information available in the database. The 'Other locations' fields give, when necessary, the additional municipalities over which the translocated population extends.

Main locality (imprecise location) of the center of the population

Here is the approximate location (as explained above) of the center of the translocated population at the time of the most recent information available in the database (see 'Most recent data').

Other localities over which the population extends

This field gives, when necessary, the additional municipalities over which the translocated population extends, at the time of the most recent information available in the database (see 'Most recent data').

Confidentiality of precise population location

This field indicates whether the precise location of the population should remain confidential or not.

List of possible answers:

- *Confidential*. The precise population location information is not visible to Transloc visitors or contributors (only visible to database administrators).

- *Not confidential*.

Pop. latitude

Latitude in decimal degrees (WGS 84 geographic coordinate system) of the accurate location of the center of the population (with a desired accuracy of one thousandth of a degree), at the time of the most recent information available in the database (see 'Most recent data').

Pop. latitude

Longitude in decimal degrees (WGS 84 geographic coordinate system) of the accurate location of the center of the population (with a desired accuracy of one thousandth of a degree), at the time of the most recent information available in the database (see 'Most recent data').

Pop. location (textual)

Textual description of the accurate location of the center of the translocated population, at the time of the most recent information available in the database (see 'Most recent data').

Remarks on population location

Any useful remark not included elsewhere on the translocated population location.

1.7. Hosting site

Site research and choice criteria

Here is a list of the considerations having weighed in the search or choice of the hosting site among different possibilities.

List of possible answers:

- *Similarity*: if considerations of ecological similarity between the site(s) of origin of the translocated individuals (or of their ancestors) and possible hosting sites have weighed in the search or choice for the hosting site. (We consider that the search for a hosting site favorable to the translocated taxon in general is obvious).

- *Property*: if land ownership considerations have weighed in the search or choice for the hosting site.

- *Future*: if considerations regarding what is planned in the future on the use, the development, the property, the protection ... of the sites have weighed in the search or choice for the hosting site.

- *Protection*: if site protection status considerations have weighed in the search or choice for the hosting site.

- *Heritage/history*: if heritage or historical considerations have weighed in the search or choice for the hosting site.

- *Attendance*: if considerations relating to the use of the site by humans (walkers, professionals ...) have weighed in the search or choice for the hosting site.

- *Technical feasibility*: if considerations relating to the technical feasibility (transport, accessibility of the site ...) have weighed in the search or choice for the hosting site.

- *Economic*: if economic considerations have weighed in the search or choice for the hosting site.

- *Administrative*: if administrative or regulatory considerations (excluding land ownership and protection status) have weighed in the search or choice for the hosting site.

- *None*: if none of the listed considerations weighed in the search or choice for the hosting site, for example because the translocation was a reinforcement or reintroduction and the hosting site was fully integrated within the original idea of the translocation project.

Main site criteria

Boxes allowing to hierarchize the criteria involved in the search or the choice of sites in main criteria (box checked) or secondary criteria (box not checked).

Distance nearest pop

Here is specified the distance in km between the translocated population and the nearest population of the same taxon at the time of the first RST (release/sowing/transplantation) intervention. Write NA (Not applicable) if the translocated population is the unique population of the taxon.

Nearest and origin

Here is specified whether the nearest population is one of the population from which the translocated individuals (or their close ancestors) were born.

List of possible answers:

- *Yes*

- *No*

- *Not applicable*: Not applicable, because the translocated population is the unique population of the taxon.

Connection

Field which specifies whether the translocated population could be connected by gene flow (through the migration of diaspores, pollen, individuals…) to another population existing at the time of the first RST (release/sowing/transplantation), whatever this population was natural or previously translocated.

List of possible answers:

- *Likely*

- *Unlikely*

- *Not applicable*: Not applicable, because the translocated population is the unique population of the taxon.

Isolation cause

Field that optionally indicates why 'Likely' or 'Unlikely' was mentioned in the 'Connection' field.

Initial protection

Field which specifies whether the hosting site was, at the time of first RST (release/sowing/transplantation), partly or completely within a protected area, i.e., enjoying a special regulatory status with regard to the protection of nature.

List of possible answers:

- *Yes*

- *No*

Protection last check

Specifies whether the hosting site was, at the time of the most recent information available in the database (see 'Most recent data'), partly or completely within a protected area, i.e., enjoying a special regulatory status with regard to the protection of nature.

List of possible answers:

- *Yes*

- *No*

Consequence on protection

Specifies whether the hosting site benefited from a protected status following translocation and as a consequence of the translocation.

List of possible answers:

- *Yes*

- *No*

Site remarks

Any useful remark not included elsewhere on the hosting site.

1.8. Habitat type

Habitat list

Here is a list of habitat types in which the translocated population is located, according to the EUNIS habitat types (https://eunis.eea.europa.eu/habitats.jsp) up to the third level of the EUNIS hierarchical classification.

Literal description

Reports the habitat of the translocated population as it is literally described in the documents about this population.

1.9. Biological material

Choice criteria biological material

Here is a list of the considerations having weighed in the choice of the biological material that has been translocated to the hosting site among different possibilities.

List of possible answers:

- *Genetics*: if genetic considerations have influenced the choice of translocated biological material, whether this choice was made on translocated individuals themselves or on their ancestors; these genetic considerations may be related to what is known or assumed of the level of adaptation of the biological material to the hosting site, or to problems related to inbreeding depression, or to outbreeding depression, or to a lack of genetic variation...

- *Physiology*: if considerations related to their level of development (stage of the life cycle, age) or to their physiology (height, weight, sex ...) have weighed in the choice of translocated individuals.

- *Sanitary*: if considerations related to their health status (marks of infection, injuries ...) have weighed in the choice of translocated individuals.

- *Development*: if criteria related to the conditions in which they developed before the translocation influenced the choice of translocated individuals; the considerations taken into account may include the fact that the individuals had grown in nature or in captivity, that they had already been living in conditions with competitors or predators or parasites, etc. (excluding genetic considerations of their degree of adaptation to the hosting site).

- *Technical feasibility*: if considerations relating to the technical feasibility (transport, precautions necessary for the transfer of individuals ...), have weighed in the choice of translocated individuals, among a set of possible individuals.

- *Economic*: if economic considerations have weighed in the choice of translocated individuals, among a set of possible individuals.

- *Administrative*: if administrative or regulatory considerations weighed in the choice of translocated individuals, among a set of possible individuals.

Diversity of translocated stages

Specifies whether individuals from at least two different life-cycle stages were used in the translocation.

List of possible answers:

- *Yes*

- *No*

Stages

Field that lists the organs or stages in the life cycle of the translocated individuals, among the following possibilities.

List of possible answers:

- *Seeds/Diaspores*

- *Seedlings*: young plants (from sexual or asexual reproduction: layering, cuttings, etc.) with aerial parts comprising only a few leaves, possibly including cotyledons.

- *Older vegetative plants*: plants (derived from sexual or asexual reproduction) with well-developed aerial parts that have never before produced reproductive organs (flowers).

- *Adult plants*: plants (derived from sexual or asexual reproduction) with developed aerial parts that have already produced flowers during their lifetime (or in bloom).

- *Underground plant parts*: bulbs, rhizomes, tubers... of a perennial plant.

- *Other plant organs*:

- *Plant fragments*: aerial or underground plant fragments, not necessarily well differentiated or determined, and possibly contained in soil that is transported.

- *Eggs*

- *Larvae*

- *Juveniles*

- *Subadults*

- *Adults*

- *Other*: e.g., thallus of a lichen

- *To be determined*

Birth of the tranlocated individuals

Specifies where the translocated individuals were born among two types of places. In the case of plants from seeds, we consider the place where the seeds were produced.

List of possible answers:

- *Nature*

- *Captivity*

- *Both*: some individuals in nature, some in captivity (e.g. zoo, botanic garden…)

Diversity of natural origins

Specifies whether the translocated individuals (or their ancestors if they were born in captivity) originated from different natural populations.

List of possible answers:

- *Yes*

- *No*

Natural origins

Here is a list of the locations of the original natural populations of individuals used for translocation or their ancestors if they were born in captivity.

As for the location of the translocated population (see section 1.6), there is an approximate location, available to any contributor, and an accurate location, visible only if declared not confidential. The approximate location gives the country and, when available, the region (or first administrative division), the province (or second administrative division), and, generally, the municipality. In some cases when it seemed more relevant or useful, the name of the municipality is replaced by the name of a natural park or reserve, of an island, a cape, a peak, or a lake. Both approximate and accurate locations are relative to the location of the center of the natural population.

Reinforcement material

Only in the case of reinforcement, this field specifies the place where the translocated individuals were born.

List of possible answers:

- *Same population*: In this case, for the translocation to be considered as reinforcement and be included in the database, either the translocated individuals had an ex situ stay sufficiently prolonged to enable them to go through a stage of the life cycle with a higher survival rate than it would have been in natura, or they were kept ex situ for a period during which the population size declined (eg, seeds harvested in natura and kept in the seed bank for several years during which population size declined).

- *Ex situ*: when they were born *ex situ*, regardless of the origin of their parents.

- *Other population(s)*: when they were born in another or other natural population(s).

- *Multi*: when they were born in at least two different place categories above (details can be written in 'Remarks about translocation type')

- *Not applicable*: when the translocation is not a reinforcement.

Remarks on biological material

Any useful remark not included elsewhere on the biological material.

1.10. Interventions

Habitat preparation

Specifies whether the hosting site benefited from any preparatory management such as brush clearing, fertilization, fencing, etc., before translocating biological material, in order to favor individual survival or population establishment.

List of possible answers:

- *Yes*

- *No*

Time ex situ

Specifies the time separating sampling of biological material in nature and the RST to the hosting site, among different possibilities. For example: 'A few days', 'A few weeks', '3 months', '8 years', 'Varying among individuals (1-4 years)', etc.

Stage change

Specifies, only for individuals born in nature, whether they passed from one life-cycle stage to another between their sampling in nature and their translocation in the hosting site. For example, they were collected as seeds in nature and then transplanted in the hosting site as seedlings, or they were captured as juveniles and released as subadults.

List of possible answers:

- *No*: Translocated individuals that were born in nature were then released, sown, or transplanted in the hosting site at the same life-cycle stage.

- *Yes for all*: All translocated individuals that were born in nature were then released, sown, or transplanted in the hosting site at a different life-cycle stage.

- *Yes for some*: Some translocated individuals that were born in nature were then released, sown, or transplanted in the hosting site at a different life-cycle stage.

- *Not applicable*: Not applicable because all translocated individuals were born in captivity.

Genetic program

Specifies whether the time passed *ex-situ* was used to make controlled crosses or to select biological traits thought to be favorable to translocation success.

List of possible answers:

- *Yes*

- *No*

- *Not applicable*: Not applicable because no translocated individual has experienced *ex-situ* time.

Increase in number

Specifies whether the time passed ex situ was used to increase the number of individuals (through vegetative propagation, *ex-situ* sexual reproduction in gardens or animal husbandry…).

List of possible answers:

- *Yes*

- *No*

- *Not applicable*: Not applicable because no translocated individual has experienced *ex-situ* time.

Increase methods

Optional details on methods used to increase the number of individuals during *ex-situ* time.

Environmental conditioning

Specifies whether released, sown or transplanted individuals benefited from a pre-RST (release/sowing/transplantation) environmental conditioning (e.g., young plants in pots outdoor at the hosting site, animals in competitive conditions…).

List of possible answers:

- *All*

- *Some*

- *None*

Sub-populations delimitation

Specifies whether the biological material was translocated according a spatial design which delimited subpopulations within the translocated population.

List of possible answers:

- *Yes*

- *No*

Technical details

Specifies, with the prospect of future translocations, the level of technical/methodological details available for this translocation in the documents used for the database and freely available.

List of possible answers:

- *Very detailed*

- *Fairly detailed*

- *Moderately detailed*

- *Briefly detailed*

- *No details are available*

Temporal RST spread

Specifies the time spread between first and last RST (release/sowing/transplantation) among different possibilities.

List of possible answers:

- *No time spread*: no more than one week between the first and the last RST.

- *Weeks*: more than one week separating the first and the last RST (up to one month).

- *Months*: more than one month separating the first and the last RST (up to one year).

- *Years*: more than one year separating the first and the last RST.

Number of RST interventions

Gives the number of RST (release/sowing/transplantation) interventions that occurred from the beginning to the end (or to the most recent information) of the translocation program. One RST occurring in spring and another one in autumn are considered as different interventions. But RSTs within a few days or in different patches within the population are not considered as different interventions.

Total number of individuals

Gives the total number of individuals released, sown and transplanted over all life-cycle stages and all RST interventions in the translocated population. This can be an approximate number. If the unit is not an individual, specify this in the remarks on methods.

Post RST interventions

Specifies whether the translocated population benefited from any post-RST management among different possibilities.

List of possible answers:

- *Sanitary treatment*: if some individuals released, sown, or transplanted benefited from post-RST care consisting of drug treatment.

- *Reproduction*: if some individuals released, sown, or transplanted benefited from post-RST interventions that manipulated their reproduction.

- *Dispersal*: if some individuals released, sown, or transplanted benefited from post-RST interventions that manipulated their dispersal.

- *Environment-nutrients*: if some individuals released, sown, or transplanted benefited from a supply of nutrients (water, minerals, solid foods ...) in their environment.

- *Environment-regulation*: if some individuals released, sown, or transplanted benefited from a regulation of competitors, predators, parasites (cuts, opening of the environment, phytosanitary treatment…) in their environment.

- *Other*: if some individuals released, sown, or transplanted benefited from another type of post-RST intervention (precisions can be given in the remarks on methods).

- *None*: the translocated population did not benefit from any post-RST management.

Remarks on methods

Any useful remark not included elsewhere and related to the manipulation of translocated individuals before, during or after their release, sowing, transplantation, or to actions on their environment.

RST table

This table gives detailed information on the numbers and types of individuals (or of other entities of any biological material) that were released, sown or transplanted in the hosting site of the translocated population. The entire table can be made confidential, i.e. not visible to Transloc visitors or contributors (only to database administrators).

Confidentiality of RST numbers

This field indicates whether the table with the numbers and types of individuals (or of other entities of any biological material) that were released, sown or transplanted should remain confidential or not.

List of possible answers:

- *Confidential*.

- *Not confidential*.

Year

Year of the RST interventionif known precisely.

Year lower limit

Lower limit of year of RST if the precise year is uncertain.

Year upper limit

Upper limit of year of RST if the precise year is uncertain.

RST latitude

Latitude of RST ONLY IF it is different from pop location indicated in the Location tab (in the case of sub-population delimitation, or in the case where the centre of the population has moved since the translocation event).

RST latitude

Longitude of RST ONLY IF it is different from pop location indicated in the Location tab (see above).

Stage

Translocated stages or entities among the following possibilities.

List of possible answers:

- *Seeds/Diaspores*

- *Seedlings*: young plants (from sexual or asexual reproduction: layering, cuttings, etc.) with aerial parts comprising only a few leaves, possibly including cotyledons.

- *Older vegetative plants*: plants (derived from sexual or asexual reproduction) with well-developed aerial parts that have never before produced reproductive organs (flowers).

- *Adult plants*: plants (derived from sexual or asexual reproduction) with developed aerial parts that have already produced flowers during their lifetime (or in bloom).

- *Underground plant parts*: bulbs, rhizomes, tubers... of a perennial plant.

- *Other plant organs*:

- *Plant fragments*: aerial or underground plant fragments, not necessarily well differentiated or determined, and possibly contained in soil that is transported.

- *Eggs*

- *Larvae*

- *Juveniles*

- *Subadults*

- *Adults*

- *Other*: e.g., thallus of a lichen

- *To be determined*

- *All stages*: the numbers indicated correspond to different types of individuals or biological entities.

Age/stage precision

Give here any useful precision on the translocated stage(s). For example, '5-7 years old' or '25x25x15 cm clods of earth' or 'clumps with unknown number of individuals' or 'all stages except seedlings'.

Sex

Indicate here the sex of translocated individuals, among different categories.

List of possible answers:

- *Female*

- *Male*

- *Hermaphrodite*: Include in this category all individuals that have both male and female sexes in the same individual, e.g. plants of monoecious species although they are not hermaphroditic in the precise sense of the word.

- *Mixed*: when the translocated individuals are from different categories above.

Occurrence

Indicates whether individuals of the specified stage (or 'all stages') were released, sown or transplanted during this RST intervention, even if you have no idea how many.

List of possible answers:

- *Yes*

- *No*

Number

Number of individuals of the specified stage (or 'all stages') translocated in the population during this particular RST intervention.

Interval

Interval (when it is more relevant than a precise number) of the number of individuals of the specified stage (or 'all stages') translocated in the population during this particular RST intervention.

1.11. Post-RST monitoring

Observation time spread

Gives the number of years between the first RST (release/sowing/transplantation) intervention and the last known monitoring visit to the population (or host site in case of extinction).

Abundance

Specifies whether there has been population size estimation at least once during the years that followed the first-RST year (RST=release/sowing/transplantation).

List of possible answers:

- *Yes*

- *No*

Time series

Specifies whether there has been population size estimation at least twice during two different years that followed the first-RST year (RST=release/sowing/transplantation).

List of possible answers:

- *Yes*

- *No*

Founder demography

Specifies whether there has been monitoring of founder (translocated) individuals allowing to calculate at least one demographic rate (survival or fecundity) between years for these individuals, whatever this rate has explicitly been given in a document or not.

List of possible answers:

- *Yes*

- *No*

- *Not applicable*: Not applicable because the population went extinct too quickly for such monitoring.

Descendance demography

Specifies whether there has been monitoring of descendants of founder (translocated) individuals allowing to calculate at least one demographic rate (survival or fecundity) between years, whatever this rate has explicitly been given in a document or not.

List of possible answers:

- *Yes*

- *No*

- *Not applicable*: Not applicable because the population went extinct too quickly for such monitoring.

Population viability analysis

Specifies whether there has been a Population Viability Analysis of the translocated population (for details, see 'Definitions of key terms used in Transloc' page 1 of the pdf.

List of possible answers:

- *Yes*

- *No*

- *Not applicable*: Not applicable because the population went extinct too quickly for such monitoring.

Remarks on monitoring

Any useful remark not included elsewhere on monitoring.

1.12. Results

Founder reproduction

Specifies whether a progeny (seeds, seedlings, new separated ramets, babies, juveniles…) of the founders has been observed in the case where such a progeny has been sought.

List of possible answers:

- *Yes*

- *No*

- *Not applicable*: Not applicable because monitoring has not (yet) been long enough or the population has gone extinct too quickly to allow such monitoring.

Descendance reproduction

Specifies whether a progeny (seeds, seedlings, new separated ramets, babies, juveniles…) of the descent of the founders has been observed in the case where such a progeny has been sought.

List of possible answers:

- *Yes*

- *No*

- *Not applicable*: Not applicable because monitoring has not (yet) been long enough or the population has gone extinct too quickly to allow such monitoring.

Dispersal

Specifies whether migration to any other hosting site has been observed, likely due to dispersal from the translocated population (e.g. colonization of a close pond for aquatic plants, of new cliffs for cliff-dwelling birds…). Indicate 'No' even though no monitoring of nearby empty sites was carried out.

List of possible answers:

- *Yes*

- *No*

Mortality causes

Gives any likely cause of mortality of translocated individuals.

Population viability evaluation

Gives an evaluation of the viability of the translocated population.

List of possible answers:

- *Positive*: if the population has been deemed viable by scientists and / or experts.

- *Negative*: if it was deemed not viable.

- *Uncertain*: if scientists and / or experts have expressed the opinion that viability could not be judged, or if divergent opinions have been expressed on this point.

- *Not expressed*: no judgment was expressed on the viability of pop.

Ecosystem consequences

Specifies if particular consequences of the translocation on the ecosystem have been noticed.

List of possible answers:

- *Yes*

- *No*

- *Uncertain*: if scientists and / or experts have expressed divergent opinions on the occurrence of noticeable ecosystem consequences.

Socio-ecosystem consequences

Specifies particular consequences of the translocation on the socio-ecosystem have been noticed.

List of possible answers:

- *Yes*

- *No*

- *Uncertain*: if scientists and / or experts have expressed divergent opinions on the occurrence of noticeable socio-ecosystem consequences.

Details on consequences

Literally indicates the consequences observed on the ecosystem or socio-ecosystem.

Experimental benefit evaluation

Gives an evaluation of the experimental returns of the translocation.

List of possible responses:

- *Positive*: the translocation was found to be beneficial in that it provided substantial information on the ecology of the taxon, allowing to improve future translocations or the conservation of extant populations.

- *Negative*: in the opposite case (when, for example, the translocation provided little information while resulting in a loss of biological material available for future translocations).

- *Uncertain*: the experimental benefit of the translocation is considered uncertain or opinions differ on this point.

- *No consequence*: there is no significant consequence of translocation on this experimental aspect (knowledge acquisition and loss of biological material negligible).

- *Not expressed*: no judgment expressed on this point.

Ecosystem benefit evaluation

Gives an evaluation of the ecosystem impacts of the translocation.

List of possible responses:

- *Positive*: The translocation has modified the ecosystem in a positive sense.

- *Negative*: The translocation has modified the ecosystem in a negative sense.

- *Neutral*: The translocation has modified the ecosystem in a sense considered neither positive nor negative.

- *Uncertain*: It is considered uncertain or opinions differ as to whether the modification of the ecosystem resulting from the translocation is favorable or unfavorable.

- *Not expressed*: No judgment expressed on this point.

- *Not applicable*: Not applicable because there have been no ecosystem consequences of the translocation (see the 'Ecosystem consequences' field).

Socio-ecosystem benefit evaluation

Gives an evaluation of the socio-ecosystem impacts of the translocation.

List of possible responses:

- *Positive*: The translocation has modified the socio-ecosystem in a positive sense.

- *Negative*: The translocation has modified the socio-ecosystem in a negative sense.

- *Neutral*: The translocation has modified the socio-ecosystem in a sense considered neither positive nor negative.

- *Uncertain*: It is considered uncertain or opinions differ as to whether the modification of the socio-ecosystem resulting from the translocation is favorable or unfavorable.

- *Not expressed*: No judgment expressed on this point.

- *Not applicable*: Not applicable because there have been no socio-ecosystem consequences of the translocation (see the 'Socio-ecosystem consequences' field).

Remarks on results

Any useful remark not included elsewhere on results.

Table of population dynamics

This table gives detailed information on the visitations, population occurrences and population sizes of the translocated population. The entire table can be made confidential, i.e. not visible to Transloc visitors or contributors (only to database administrators).

Confidentiality of pop dynamics

This field indicates whether the table with the visitations, population occurrences and population sizes of the translocated population should remain confidential or not.

List of possible answers:

- *Confidential*.

- *Not confidential*.

Year

Year of the monitoring if known precisely.

Year lower limit

Lower limit of the interval of years of monitoring (if the precise year is uncertain)

Year upper limit

Upper limit of the interval of years of monitoring (if the precise year is uncertain).

Visitation

Specifies whether the population was visited in the year (or year interval) indicated.

List of possible answers:

- *Yes*

- *No*

Stage

Translocated stages or entities observed among the following possibilities.

List of possible answers:

- *Seeds/Diaspores*

- *Seedlings*: young plants (from sexual or asexual reproduction: layering, cuttings, etc.) with aerial parts comprising only a few leaves, possibly including cotyledons.

- *Older vegetative plants*: plants (derived from sexual or asexual reproduction) with well-developed aerial parts that have never before produced reproductive organs (flowers).

- *Adult plants*: plants (derived from sexual or asexual reproduction) with developed aerial parts that have already produced flowers during their lifetime (or in bloom).

- *Underground plant parts*: bulbs, rhizomes, tubers... of a perennial plant.

- *Other plant organs*:

- *Plant fragments*: aerial or underground plant fragments, not necessarily well differentiated or determined, and possibly contained in soil that is transported.

- *Eggs*

- *Larvae*

- *Juveniles*

- *Subadults*

- *Adults*

- *Other*: e.g., thallus of a lichen

- *To be determined*

- *All stages*: the numbers indicated correspond to different types of individuals or biological entities.

Age/stage precision

Give here any useful precision on the observed stage(s). For example, '5-7 years old' or 'flowering plants' or 'breeding adults', or 'ramets', or 'females older than 3 years', or 'all stages except underground bulbs', etc.

Sex

Indicate here the sex of observed individuals, among different categories.

List of possible answers:

- *Female*

- *Male*

- *Hermaphrodite*: Include in this category all individuals that have both male and female sexes in the same individual, e.g. plants of monoecious species although they are not hermaphroditic in the precise sense of the word.

- *Mixed*: when the translocated individuals are from different categories above.

Occurrence

Indicates whether individuals of the specified stage (or 'all stages') were released, sown or transplanted during this RST intervention, even if you have no idea how many.

List of possible answers:

- *Yes*

- *No*

Number

Number of individuals of the specified stage (or 'all stages') translocated in the population during this particular RST intervention.

Interval

Interval (when it is more relevant than a precise number) of the number of individuals of the specified stage (or 'all stages') translocated in the population during this particular RST intervention.

Include RST of this year?

Specifies whether the given numbers include individuals that have been translocated since the previous count.

List of possible answers:

- *Yes*

- *No*

Absolute/Relative

Specifies whether the figures given are for the whole population (absolute) or just an unknown proportion of it (relative)?

List of possible answers:

- *Absolute*

- *Relative*

Observed/Estimated:

Specifies whether the figures given are the result of an observation with a count or an estimate (the estimate may itself be the result of a count on a surface sample).

List of possible answers:

- *Observed*

- *Estimated*

Area of occupancy of the population

Sum of the surfaces (with unit) occupied by the individuals of the translocated population, excluding unsuitable or unoccupied places. This is generally a subset of the extent of occurrence

Extent of occurrence of the population

Indicates the total area (with unit) of the polygon (minimum convex polygon), containing all the patches of individuals of the translocated population.

1.13. References

In this tab are listed the documents (scientific articles, book chapters, reports, web pages, interview grids, survey results tables, etc.) giving information about the translocated population.

Document code

Reference

DOI

Significance

1.14. Charts

Here are details on the available and missing information about the translocated population. You can click, e.g., on the 'Unavailable' bar and get the list (in the table below the figure) of the fields of the database for which no information is available for this population.
