

Data Fitness For Use in Research on Alien and Invasive Species

# **Interim Report**

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# **DFFU\_IAS Task Group Members**

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**Overview of DFFU\_IAS Task**

The DFFU\_IAS will capture the best available experiences, document limitations in existing GBIF services, and suggest improvements in the functionality of GBIF.org for domain-specific needs (i.e. research on alien and invasive species). While the focus of the task group will be on the needs of research, it may also consider the best means of organizing data useful for policy needs such as indicators of progress towards *Aichi Biodiversity Target 9* and the recording of Essential Biodiversity Variables (EBVs).

### The role of GBIF in data delivery on IAS

The discovery, access and appropriate use of primary biodiversity data are critical for invasive alien species (IAS) research at continental, regional, countries levels and below. Sustainable, reliable and readily accessible data on alien and invasive species is essential to the long-term management of this key threat to biodiversity, and to countries achieving *Aichi Target 9* of the Strategic Plan for Biodiversity, 2011-2020.

**GBIF has a pivotal role to play in the provision and hosting of data on alien and invasive species. As a stable and experienced host of open access species information, it is a unique and widely relied upon source of information on the taxonomy and occurrence of alien and invasive species. Together with relevant partners, GBIF will be instrumental in the ongoing delivery of the information needed to minimize the introduction, spread and negative impacts of alien and invasive species.**

**Current relevant context**

A number of current activities, initiatives and stakeholders relevant to the DFFU\_IAS task were identified. These include for example *Aichi Target 9* of the Strategic Plan for Biodiversity 2011-2020; the IUCN SSC Invasive Species Specialist Group (ISSG) led *Global Register for Introduced and Invasive Species*; the multi-partner *Essential Variables for Invasion Monitoring and Reporting* initiative (www.invasionevs.com); the proposed the Darwin Core standard expansion including terms and vocabularies of the Biodiversity Information Standards organization specifically for IAS data, and the GEO BON Species Distribution Essential Biodiversity Variable (SD\_EBV) working group activities, as well as impact and pathway classification schemes being developed and promoted by ISSG and research partners.

**Activities**

* The Task Group (TG) was formed in March 2016, with a first skype call on 11 April 2016 and second on 8 June 2016.
* The first in-person meeting of the TG was held at iDiv in Leipzig, 10-12 July 2016.
* The objectives of the first meeting were to (i) complete and populate a scoping exercise for the task, (ii) finalise the survey designed to obtain input from relevant researchers, (iii) identify the series of tasks and activities for the period between the 1st and 2nd meetings, (iv) generate a provisional set of recommendations.

**Progress and outcomes to date**

**(I) Survey**

A survey has been designed and circulated to a group (n = ~ 60) of targeted researchers that represent the relevant community and encompass expertise across realms, taxa and geographic regions (**Appendix A**). This survey will run until end August 2016, after which it will be circulated for response by interested members of the broader community (via GBIF channels, the Aliens-L list server managed by ISSG, at the Alien Challenge COST Action at the Neobiota conference). The survey provides the primary avenue of intended liaison with other experts to define the data use priorities essential for the IAS research community. It will constitute widespread consultation and determine key questions that need to be addressed for the IAS community on data availability and data use, including improvements in discovery and access, data mobilization, data and metadata publishing, and data processing at institutional, national, regional, and global levels. The feedback received via this route will be accommodated into a set of recommendations for improvements in GBIF.org functionality by creating targeted data use profiles.

**(II) Topic areas**

Following a scoping exercise, four key topic areas to be covered in this DFFU task were identified:

1. Data needed for the study, reporting and management of biological invasions
2. Structures required to support these data
3. Recommendations for what GBIF could and should do with these data
4. GBIF and the IAS community (data providers, users and other infrastructures)

**(III) Projects**

A number of areas under the four topics outlined above, but requiring some conceptual development or further work, were identified at the 1st TG meeting. These have been termed ‘projects’ and will form the basis of work to be conducted between the 1st and 2nd DFFU\_IAS Task Group meetings.

1. Annotation of species using categorical status information from other sources
2. Operational partnerships to support IAS data
3. How should GBIF deal with IAS impact information
4. How could GBIF support species prioritization
5. Dealing with data on species interactions, e.g. biocontrol
6. Reviewing Darwin Core recommendations for IAS
7. Possibility of a model ‘event core’ for IAS
8. How could/should GBIF deal with pathways data
9. IAS record reporting dynamics
10. Gap analysis for IAS data managed by GBIF
11. Web services to support IAS research

### (IV) Provisional key recommendations on DFFU for IAS research

### Species interactions (with a focus on diseases, parasites and biocontrol agents) are key to understanding the spread and impacts of IAS. Recommendation: Consider how species interaction data could be accommodated by GBIF, at both the species level and at the occurrence/record level.

* The recently released and ongoing development of the Global Register of Introduced and Invasive Species (IUCN SSC ISSG as part of GIASIP) provides a key filter and prioritisation mechanism for GBIF. **Recommendation**: As an evidence-based and nationally verified list of species we recommend it’s use for targeting and prioritising the update, cleaning, completion and creation of relevant filters for this group of species data in GBIF. Priority data includes taxonomy, synonyms, common names, absences and native geographic ranges.
* Darwin Core is the recommended and adopted standard for occurrence data, but in its current form has particular shortcomings that hinder its value for alien and invasive species data and research. **Recommendation**: Support necessary changes to Darwin Core fields and vocabularies.
* The value of alien species occurrence and event data can be significantly enhanced by enabling data extraction and providing relational data for particular highly relevant IAS applications. **Recommendation**: Key filters identified thus far for GBIF-hosted occurrence and event data include land management governance boundaries (such as country, state/province and protected areas). **Recommendation**: Key attributes and/or derived data identified thus far include realm/environment, habitat, pathways and impact data.
* A longer list of provisional, draft recommendations is provided in Appendix II.

**Future Work**

* The next skype meeting will be held in August 2016
* The 2nd in-person meeting of the TG is planned for 10-13 October at Monash University, Clayton, Melbourne.
* The provisional objectives for the 2nd in-person meeting include (i) analysis and integration of survey results into draft final report, (ii) integration of project results into draft final report as appropriate, (iii) completion of draft final report, (iv) planning of follow-up activities pending DFFU\_IAS Task Group end date.

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### Appendix I Survey

**Appendix II** Draft working list of recommendations