**Appendix S1: Methods of literature review**

1. Preparing literature records for data extraction:

We adopted a four-step strategy to prepare the literature records for data extraction: 1) searching the bibliographic repository, 2) screening the search results, 3) organizing the search results, and 4) finding full texts for data extraction. The details are mentioned below.

* 1. Searching the repository:

The literatures were retrieved by searching the ISI Web of Science [(<https://webofknowledge.com/>), WoS hereafter] with the search words appearing anywhere in the article: TS=((utiliz\* OR utilis\* OR benefit OR utility) AND (invasive OR invader) AND (plant) NOT (cancer\* OR cardio\* OR surg\* OR carcin\* OR engineer\* OR rotation OR ovar\* OR polynom\* OR purif\* OR respirat\* OR "invasive technique" OR carbon OR fuel OR therap\* OR vehicle OR cell\* OR drug OR fitness OR "operational research" OR banking OR liberalization)). The literature published during the time period of 2000-01-01 to 2020-12-31 was reviewed. We conducted all searches using the English language. The database search was conducted on 05 May 2021, and we retrieved 3,775 literature records. In addition, literatures were also retrieved from two review articles on this topic: one published in the time frame of 2000-2009 ([Goodenough 2010](#_ENREF_5)) and another in the last decade ([Shackleton et al. 2019](#_ENREF_10)).

* 1. Screening the search results:

The retrieved literature records were assessed from their respective titles, abstracts, and keywords to screen relevant materials based on three criteria. In addition, the materials were not considered if:

1. Reviews and commentaries without providing any specific positive impact associated with an invasive alien plant species [e.g., ([Brundu et al. 2020](#_ENREF_2))]
2. Studies reporting beneficial impacts of non-native but non-invasive species [e.g., ([Castro-Diez et al. 2019](#_ENREF_3))]
3. Studies providing guidelines without any specific positive impact of an invasive alien plant species [e.g., ([Vaz et al. 2017](#_ENREF_11))].

At the end of the screening process, we had 965 literature records from the WoS database.

1.3 Organizing search results

We used the EndNote (EN, hereafter) version 7.0.1 (ClarivateTM) as the reference management tool to organize all the references. We first arranged them sequentially by displaying the following fields: Author, Year, Title, Journal, Pages, and Volume. The ‘Find Duplicates’ function of the EN was then used to find and remove the duplicate records. We adopted a multi-stage duplicate removal strategy in which the duplicate records were identified and removed based on all possible combinations (n=11) of the displayed fields (e.g., Author-Year-Title-Journal, Author-Year-Title-Pages, Title-Journal-Pages). Finally, the entire EN library was manually checked by ‘Title’ of the retained records to ensure no duplicate record was present in the library. At the end of this exercise, 439 literature records were left.

1.4 Finding full texts

The next step was to find the full text, preferably in portable document format (PDF), for these records. We first used the ‘Find Full Text’ tool embedded in the EN to retrieve the full text. In addition, we used: 1) two Academic Social Networks (ASNs) - ResearchGate (<https://www.researchgate.net/>) and Academia.edu (<https://www.academia.edu>); 2) two online databases - ScienceDirect (<https://www.sciencedirect.com/>) and ProQuest (<https://www.proquest.com/>); and 3) two search engines - Semantic Scholar (<https://www.semanticscholar.org/>) and Google (<http://www.google.com/>). These six sources were searched with the ‘Title’ of the individual record. In this process, we could retrieve 298 full texts. These records were further screened using the same criteria mentioned in Step 1.2. Finally, we were left with 154 literature records ready for data extraction.

2. Data extraction:

We extracted the use information of the IAPS from all literature. In addition to the main text, the online information (e.g., supplementary data, appendix) was also examined to collect use information. From each literature record, we extracted five information: Taxon name, Year, Country, Scale, and Positive impacts as reported. In studies where multiple species were reported without mentioning species-specific impact, we assigned all positive impacts to all species. In cases where no country (or continental) information was available, we considered the information at global scale. In case the year information was missing, we used the publication year.

The extracted data were processed further by:

1. Categorizing the reported positive impacts according to 13 TDWG Level-1 states ([Cook 1995](#_ENREF_4))
2. Standardizing the taxonomic names by using the *WorldFlora* package ([Kindt 2020](#_ENREF_7)) in R version 4.0.2 ([R Core Team 2020](#_ENREF_8)).

3. Data organization:

The processed data were arranged in a .CSV file under the following column heads:

1. **Observation ID**: A unique identifier for the literature records coded as 1 to 154
2. **Reported taxon name**: The name of the taxon as reported in the literature
3. **Standardized taxon name**: Taxon names as standardized by using the World Flora Online taxonomic backbone
4. **Scientific name authorship**: Author name(s) associated with the taxon
5. **Taxon Rank**: Taxonomic rank (Genus, Species, Subspecies, Variety)
6. **Family**: Scientific name of the family in which the taxon is classified
7. **Year**: The year when the observation was made. The complete data set is arranged in decreasing order of the year (i.e., starting from the year 2020 to year 2000).
8. **Country**: Name of the country from where the observation was reported. The country names follow the ISO 3166 three-letter country code standard. In case the country information was missing, the name of the continents or large geographic regions are mentioned. In absence of any specific information, we considered the record belonging to the global scale.
9. **Scale of observation**: Scale at which the observation was made (global/national/regional)
10. **Reported positive impacts**: The positive impacts for each taxon as reported by the author(s) of the study. Individual impacts are separated by commas in this column.
11. **TDWG-level 1 categories**: Columns K-W recording the 13 TDWG-level 1 states of uses. The reported positive impacts were organized in binary form (1/0) in these columns.
12. **Bibliography**: Complete source information of individual record following the APA format of citation style.

**Scopes of improvements:**

The primary objective of this study was to provide our personal perspective on the positive impacts of the invasive alien species. To address this objective, we curated literature reports highlighting the positive impacts of the invasive alien plant species on human and non-human livelihoods in the last two decades. We never intended to provide a systematic review on this issue, for which recent [e.g., ([Shackleton et al. 2019](#_ENREF_10))] and detailed accounts [e.g., ([Goodenough 2010](#_ENREF_5))] are available. Therefore, the list of retrieved literature reports in this study is not exhaustive and can be improved by many folds. We could identify five areas where such improvements can be done:

1. By increasing the temporal scale - considering literature reports published before the year 2000). We adopted the time frame of the last two decades since the 'novel ecosystems' concept was proposed in 2006 by [Hobbs et al. (2009)](#_ENREF_6).
2. By including more studies from the island nations, where the IAS are reported to have stronger impacts across biodiversity, agriculture, economy, health and culture than on continent ([Russell et al. 2017](#_ENREF_9)).
3. By consulting multiple bibliographic repositories – for example, SCOPUS and Google Scholar, to minimize the risk of omitting relevant materials. Information retrieval from Google Scholar can be complex, given the limited number of Boolean operators and search string characters (restricted to 256 characters) and restricted visibility of the search result (the first 1,000 search results are visible).
4. By considering use of more systematic and subject-focused search strings
5. By including literature reports published in languages other than English. The resolution can be further increased by extracting data from the grey literature, including conference proceedings, theses and dissertations, and government reports.

**Data availability:**

The data ([Banerjee & Huang 2022](#_ENREF_1)) is archived in Zenodo at <https://doi.org/10.5281/zenodo.7623474>.

**Literature cited:**

Banerjee AK, Huang Y (2022) Data from: How science communications can help build societal perceptions of invasive alien species and their impacts on the environment. *[Data set]. Zenodo. https://doi.org/10.5281/zenodo.7623474*.

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