



Instructions for the preparation of data packages for the Index of Biodiversity Surveys for Assessments (IBSA)

Purpose of these instructions

To assist proponents in preparing Index of Biodiversity Surveys for Assessments (IBSA) data packages. The Environmental Protection Authority (EPA), Department of Water and Environmental Regulation and Department of Mines, Industry Regulation and Safety require IBSA Data Packages to support assessment and compliance under the *Environmental Protection Act 1986*.

The EPA has issued technical guidance documents for biodiversity surveys to ensure that biodiversity data of an appropriate standard are used in environmental impact assessment (EIA). Whenever a biodiversity survey report is provided as part of the EIA process, including for compliance purposes, the report and associated raw data must be provided electronically as part of an IBSA data package.

These instructions outline the data requirements and submission process for IBSA data packages, and the options that IP owners, i.e. owners of any intellectual property rights in the material, have regarding the public availability of IBSA data. To determine what biodiversity surveys need to be undertaken refer to the relevant EPA environmental factor guidelines and technical guidance.

Note that these instructions, and the accompanying electronic templates and forms, will be updated as the IBSA data standards are refined – particularly during the first year of IBSA's operation. Users should consult the EPA website to ensure they have the most recent versions of these documents prior to using them.

IBSA data packages

Biodiversity data are to be submitted for IBSA accompanied by the relevant biodiversity survey report and bundled as part of an IBSA data package. IBSA data packages are only required for field surveys that have generated new data. Studies based on previously existing observations, for example desktop studies, do not require IBSA data packages. Where new data have been obtained but a biodiversity survey report does not exist, such as for isolated observations or for extremely small datasets, there is no requirement for an IBSA data package to be prepared.

A single environmental review document or other documentation provided to the EPA may be accompanied by one or more IBSA data packages. Each IBSA data package should be associated with a single biodiversity survey report. Where a single biodiversity survey report documents multiple field surveys, the data from the different surveys will be contained in multiple files in the single IBSA data package for that report.

An IBSA data package is a single file in .zip format, containing:

- one **Metadata and Licensing Statement** in .pdf format;
- one **survey report** in .pdf format;
- one **plain-text survey report** in .txt format; and

- a set of electronic data files, comprising:
 - one **survey details** spatial dataset in shapefile (.shp, etc.) or Mapinfo (.tab, etc.) format; and
 - one or more **survey data** spatial datasets, as required, in shapefile (.shp, etc.) or Mapinfo (.tab, etc.) format.

Each file within the IBSA data package should comply with the IBSA data standards provided in these instructions. In naming the files within the IBSA data package, the terms presented above in bold should be incorporated into the file names.

The first year of IBSA will be a transition period (Box 1). During the transition, the electronic data files submitted as part of an IBSA data package will be accepted in any file format, provided the electronic data files possess the attributes specified by the IBSA data standards. After the transition, electronic data files must be supplied in the file formats specified in these instructions.

Box 1: Transition period

The transition period allows flexibility around the provision and format of electronic data files. Provision of a complete set of electronic data files in full compliance with the IBSA data standards will deliver the best outcome for IBSA users, and is strongly encouraged regardless of whether the transition period applies.

- *Earliest field survey commenced prior to 30 April 2018.* The IBSA data package must contain a Metadata and Licensing Statement in .pdf format, a survey report in .pdf format and a plain-text survey report in .txt format. The provision of electronic data files is optional; if provided, they may be in any file format and it is not necessary for the files to possess all attributes specified by the IBSA data standards.
- *Earliest field survey commenced on or after 30 April 2018, but before 29 April 2019.* The IBSA data package must contain a Metadata and Licensing Statement in .pdf format, a survey report in .pdf format, a plain-text survey report in .txt format and a complete set of electronic data files. The electronic data files may be provided in any format, so long as they possess all attributes specified by the IBSA data standards.
- *Earliest field survey commenced on or after 29 April 2019.* End of transition period. The IBSA data package must comply in full with these instructions and the IBSA data standards.

IBSA processes

Proponents are to submit IBSA data packages using existing EIA processes and systems, i.e. there is no requirement for proponents to directly upload information to IBSA. IBSA data packages should be treated as electronic appendices to be attached to referrals, environmental review documents and other submissions made to the EPA. Any changes or corrections made to the biodiversity survey report or underlying data during assessment or a compliance process should be reflected in an updated IBSA data package submitted to the EPA.

Once an assessment or compliance process has concluded, and regardless of any appeals processes that may subsequently occur, the metadata component of each IBSA data package, i.e. the [Metadata and Licensing Statement](#) (see Box 2), will be made publicly available on the [IBSA website](#). This will occur for all IBSA data packages, allowing all biodiversity surveys conducted in Western Australia to be indexed and discoverable in IBSA even if the datasets themselves are not made available.

Box 2: Data vs. metadata

Data are pieces of information, such as measurements, observations and counts.

Metadata summarise information about data, and provide context by describing aspects of how data were obtained.

In the context of an IBSA data package, the data are the pieces of biodiversity information that were collected in the field, such as records of flora species observed at specific times and places, or a resulting derived dataset such as a vegetation map. There may be large amounts and different types of data in an IBSA data package, depending on the size and complexity of the survey. The metadata are basic details about the survey itself, i.e. when, where and by whom it was conducted.

IP owners have control over whether the data component of an IBSA data package, i.e. the survey report, plain-text survey report and electronic data files, will be made publicly available on the IBSA website. This control is exercised with the use of licences that are granted by IP owners as part of the Metadata and Licensing Statement – the licences can allow the data component to be withheld, be published or be both published and made re-usable by third parties.

The explanatory notes accompanying the Metadata and Licensing Statement explain these options in full. It is essential that proponents and environmental practitioners understand who the IP owner is before the Metadata and Licensing Statement is completed (Box 3).

Box 3: Intellectual property rights

Proponents who intend to license their data for publication or re-use via the IBSA website must ensure that they own the intellectual property rights to that material or that they otherwise have the right and authority to grant a licence. That is, they themselves must obtain all necessary licences and consents from any relevant IP owner.

A clear understanding of intellectual property rights is essential when proponents engage third parties to conduct biodiversity surveys on their behalf. Proponents and environmental practitioners should discuss their expectations around data sharing early on, at the beginning of a biodiversity survey project. Proponents should ensure that their requirements for intellectual property ownership and sharing are clearly defined during the procurement process or by formal agreement.

IBSA data standards

Collectively, the remainder of these instructions, the electronic IBSA templates and the Metadata and Licensing Statement, with its accompanying notes and definitions, make up the IBSA data standards. The electronic IBSA templates and the [Metadata and Licensing Statement](#) are available for download at www.epa.wa.gov.au/templates-and-forms.

The IBSA data standards define a minimum required set of attributes for each electronic data file. Electronic data files that contain additional attributes will be accepted.

IBSA data packages should be provided as a single .zip file containing all required files. IBSA data packages that are incomplete, or do not otherwise comply with these instructions or the IBSA data standards, will be returned for correction.

Survey details spatial dataset

The purpose of a survey details spatial dataset is to define the physical boundary of a field survey and capture some basic details about the survey itself. The survey details spatial dataset is to be submitted in one of the following industry-standard GIS data formats:

- shapefile (.shp, etc.); or
- MapInfo TAB file (.tab, etc.).

The survey details spatial dataset should use the Geocentric Datum of Australia 1994 (GDA94) datum and be projected using the appropriate Map Grid of Australia zone, unless this is inappropriate due to the dataset's extent being larger than a single zone. This coordinate system should be defined natively with the submitted spatial data files, for example via a .prj file for submission of an Esri shapefile.

Within the survey details spatial dataset, a survey boundary should be represented as a polygon (Table 1). The survey details should then be captured as attributes of the polygon (Table 1). All attributes specified here are mandatory.

A single biodiversity survey report can often contain information from several field surveys, such as during a two-phase survey, with different survey areas, timeframes and other details. A survey details spatial dataset should therefore have one polygon and one corresponding row of data in the attributes table for each separate field survey documented in the biodiversity survey report.

Table 1: Attributes required for a survey details spatial dataset

Feature class: Polygon. Usage: The boundaries of the individual field surveys described in the survey report are to be defined using polygons. File naming: 1_SurveyDetails.			
Field	Type	Description	Example
SurveyName	Text (150)	The name of the survey. Include phase information if necessary.	Flora and Vegetation Survey of Lot 123 Outback Rd
SurveyType	Text (150)	A description of the type of survey. This should match the survey type stated in the Metadata and Licensing Statement (refer to the Statement for additional notes).	Detailed Flora and Vegetation Survey
Author	Text (100)	The name of the person or group who authored the survey report and datasets. This should match the author named in the Metadata and Licensing Statement.	ABC Consulting
StartDate	Date	The date on which the survey commenced.	15/08/2017
EndDate	Date	The date on which the survey concluded.	29/08/2017
Citation	Text (254)	A full citation for the accompanying survey report. This should match the citation provided in the Metadata and Licensing Statement.	ABC Consulting (2018). Detailed Flora and Vegetation Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments.

Survey data spatial datasets

The purpose of survey data spatial datasets is to document the physical locations of field survey activities and results and capture some basic information about them. Survey data spatial datasets are to be submitted in one of the following industry-standard GIS data formats:

- shapefile (.shp, etc.); or
- MapInfo TAB file (.tab, etc.).

Survey data spatial datasets should use the Geocentric Datum of Australia 1994 (GDA94) datum and be projected using the appropriate Map Grid of Australia zone, unless this is inappropriate due to dataset's extent being larger than a single zone. This coordinate system should be defined natively with the submitted spatial data files, for example via a .prj file for submission of an Esri shapefile.

Within survey data spatial datasets, survey activities and results are to be represented as polygons, polylines or points, depending on the data type (Tables 2A to 2F). The associated information should then be captured as attributes of those polygons, polylines and points (Tables 2A to 2F). All attributes specified here are mandatory, with the exception of comments fields.

A single IBSA data package should contain sufficient survey data spatial datasets to represent all the field survey activities undertaken and all the observations or results arising from those activities. The type and number of survey data spatial datasets will therefore depend on the type and complexity of the survey. It is the responsibility of proponents to ensure that all raw data are represented within the IBSA data package using appropriate survey data spatial datasets.

Table 2A: Attributes required for a survey data spatial dataset – sample sites

Feature class: Point, polyline and/or polygon ¹ . Usage: The locations of sites at which samples were taken or observations were made during the field surveys are to be defined using points and/or polylines (following appropriate technical guidelines, e.g. centroid, NW corner, etc.). File naming: 2A_SampleSites.			
Field	Type	Description	Example
SiteName	Text (50)	The name of the sampling site, as used in the survey report.	Site T-1
SampleType	Text (50)	A description of the type of sampling undertaken, i.e. flora, flora and vegetation, aquatic, terrestrial vertebrate fauna, terrestrial invertebrate fauna or subterranean fauna.	Terrestrial vertebrate fauna
SiteType	Text (50)	A description of the site type	Trapping
Effort	Text (100)	A brief description of effort expended at the site.	7 nights x 60 traps
Author	Text (100)	The name of the person or group who authored the survey report and datasets. This should match the author named in the Metadata and Licensing Statement.	ABC Consulting
StartDate	Date	The date the sampling commenced at this site	16/08/2017
EndDate	Date	The date the sampling concluded at this site	23/08/2017
Comments	Text (254)	Additional information about the sample site, if any.	Site included... (etc.)
Citation	Text (254)	A full citation for the accompanying survey report. This should match the citation provided in the Metadata and Licensing Statement.	ABC Consulting (2018). Detailed Terrestrial Vertebrate Fauna Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments.

¹ If a survey has captured sample sites best represented by a combination of points (e.g. quadrats), lines (e.g. transects) and/or polygons (e.g. search areas), a separate shapefile for each geometry type is required. If providing shapefiles for more than one geometry type each file name should be suffixed with ‘_pt’, ‘_pl’ or ‘_py’ as appropriate.

Table 2B: Attributes required for a survey data spatial dataset – flora

Field	Type	Description	Example
Feature class: Point and/or polygon ² .			
Usage: The locations of flora records obtained during the field surveys are to be defined using points and/or polygons.			
File naming: 2B_Flora.			
TaxonName	Text (254)	The taxon name of the flora species recorded.	Corymbia hamersleyana
SiteName	Text (50)	Name of the site at which the flora observation/collection was made, as per the Sample Sites Survey Data spatial dataset. Use 'no site' if not made at a named site.	Quadrat East-6
Abundance	Long Integer (5)	Use '0' if the taxon was present but abundance was not recorded, otherwise populate with abundance (the number of individuals of this taxon observed at this location) ³ .	50
HerbRef	Text (50)	Herbarium reference. Leave blank if the specimen has not been collected. If lodged and accessioned, insert the unique accession number assigned by the herbarium. If the specimen has been lodged but not accessioned, use the collector's name and number (or other lodgement reference).	PERTH 01305719 Beard, J. S. – 6934
WAConStat	Text (2)	The code for the conservation status (in WA) of the flora species recorded, as per the <i>Conservation Codes for Western Australian Flora and Fauna</i> published by the Department of Biodiversity, Conservation and Attractions. Leave blank if the species has no conservation status.	
DateObs	Date	The date this taxon was observed/collected.	17/08/2017
Author	Text (100)	The name of the person or group who authored the survey report and datasets. This should match the author named in the Metadata and Licensing Statement.	ABC Consulting
Comments	Text (254)	Additional information about the flora observation, if any.	In flower... (etc.)
Citation	Text (254)	A full citation for the accompanying survey report. This should match the citation provided in the Metadata and Licensing Statement.	ABC Consulting (2018). Detailed Flora and Vegetation Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments.

² If a survey has produced flora data best represented by a combination of points, e.g. locations of individuals, and polygons, e.g. distribution of a large population, a separate shapefile for each geometry type is required. If providing shapefiles for more than one geometry type each file name should be suffixed with '_pt' or '_py' as appropriate.

³ If it is necessary to denote absence, i.e. a situation where the taxon has been specifically surveyed for and definitively found to be absent, use '-9999' (in practice, it is expected that use of this option will be rare).

Table 2C: Attributes required for a survey data spatial dataset – vegetation mapping

Feature class: Polygon. Usage: The discrete vegetation units mapped during the field surveys are to be defined using contiguous polygons. File naming: 2C_Vegetation.			
Field	Type	Description	Example
VegUnit	Text (254) ⁴	Description of the discrete vegetation unit.	Themeda sp. Hamersley Station, Eriachne benthamii tall closed tussock grassland
PECTEC_Sts	Text (8)	PEC/TEC status. At the time of finalisation of the report, is this vegetation unit consistent with or part of a known threatened or priority ecological community and treated as such in the assessment? Yes, no or possible.	Yes
PECTEC_Det	Text (254)	PEC/TEC details. Leave blank if above field is 'no', otherwise provide the jurisdiction (WA or EPBC), type (TEC or PEC) and name (as per its official documentation) of the PEC/TEC. Include the details for both jurisdictions if relevant.	WA TEC 'Themeda grasslands on cracking clays (Hamersley Station, Pilbara)'
CreationYr	Long Integer (5)	The year the vegetation mapping polygons were created ⁵ .	2017
Author	Text (100)	The name of the person or group who authored the survey report and datasets. This should match the author named in the Metadata and Licensing Statement.	ABC Consulting
Comments	Text (254)	Additional information about the vegetation units, if any.	Fire history... (etc.)
Citation	Text (254)	A full citation for the accompanying survey report. This should match the citation provided in the Metadata and Licensing Statement.	ABC Consulting (2018). Detailed Flora and Vegetation Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments

⁴ Field length may be extended beyond this character limit as required. Alternatively, in shapefiles with a 254-character field size limit, the vegetation unit description may be split across multiple fields.

⁵ Vegetation classification and mapping may be based on multiple surveys, over multiple years, by multiple botanists. As such, it is difficult to attach a precise date to a vegetation map based on survey timing. However, including the year of creation of the vegetation mapping polygons in this field gives an indication of its currency for future reference. For the dates of the surveys that contributed to the mapping, users should refer to the methodology section of the associated flora and vegetation survey report.

Table 2D: Attributes required for a survey data spatial dataset – vegetation condition

<p>Feature class: Polygon. Usage: The discrete vegetation condition areas mapped during the field surveys are to be defined using contiguous polygons. File naming: 2D_VegetationCondition.</p>			
Field	Type	Description	Example
VegCond	Text (20)	Observed condition of the vegetation as per EPA technical guidance, i.e. pristine, excellent, very good, good, poor, degraded, completely degraded.	Excellent
CreationYr	Long Integer (5)	The year the vegetation condition mapping polygons were created ⁶ .	2017
Author	Text (100)	The name of the person or group who authored the survey report and datasets. This should match the author named in the Metadata and Licensing Statement.	ABC Consulting
Comments	Text (254)	Additional information about the vegetation condition, if any.	Grazing seen... (etc.)
Citation	Text (254)	A full citation for the accompanying survey report. This should match the citation provided in the Metadata and Licensing Statement.	ABC Consulting (2018). Detailed Flora and Vegetation Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments.

⁶ Vegetation condition mapping may be based on multiple surveys, over multiple years, by multiple botanists. As such, it is difficult to attach a precise date to a vegetation condition map based on survey timing. However, including the year of creation of the vegetation condition mapping polygons in this field gives an indication of its currency for future reference. For the dates of the surveys that contributed to the condition mapping, users should refer to the methodology section of the associated flora and vegetation survey report.

Table 2E: Attributes required for a survey data spatial dataset – fauna

Feature class: Point. Usage: The locations of fauna records obtained during the field surveys are to be defined using points. File naming: 2E_Fauna.			
Field	Type	Description	Example
TaxonName	Text (254)	The taxon name of the fauna species observed.	Dasycercus blythi
SiteName	Text (50)	The name of the site at which the fauna observation was made, as per the 'sample sites' Survey Data spatial dataset. Use 'no site' if not made at a named site.	Trapping site 9
Abundance	Long Integer (5)	Use '0' if the taxon was present but abundance was not recorded, otherwise populate with abundance (the number of individuals of this taxon observed at this location) ⁷ .	1
MuseumRef	Text (50)	Museum reference. Leave blank if the specimen has not been vouchered. If the specimen has been vouchered and catalogued, insert the unique catalogue number assigned by the museum. If the specimen has been vouchered but not catalogued, used the voucher number (or other lodgement reference).	WAM M41476 R173115
WAConStat	Text (2)	The code for the conservation status (in WA) of the fauna species recorded, as per the <i>Conservation Codes for Western Australian Flora and Fauna</i> published by the Department of Biodiversity, Conservation and Attractions. Leave blank if the species has no conservation status.	P4
SRE_Sts	Text (8)	SRE status. At the time of finalisation of the report, was this taxon considered to be a Short-range Endemic and treated as such in the assessment? Yes, no or possible.	No
ObsMethod	Text (50)	The method by which this taxon was observed.	Aluminium box trap
FaunaType	Text (50)	Type of fauna, i.e. terrestrial vertebrate, terrestrial invertebrate, aquatic, subterranean.	Terrestrial vertebrate
DateObs	Date	The date this taxon was observed.	17/08/2017
Author	Text (100)	The name of the person or group who authored the survey report and datasets. This should match the author named in the Metadata and Licensing Statement.	ABC Consulting
Comments	Text (254)	Additional information about the fauna observation, if any.	Male... (etc.)
Citation	Text (254)	A full citation for the accompanying survey report. This should match the citation provided in the Metadata and Licensing Statement.	ABC Consulting (2018). Detailed Terrestrial Vertebrate Fauna Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments.

⁷ If it is necessary to denote absence, i.e. a situation where the taxon has been specifically surveyed for and definitively found to be absent, use '-9999' (in practice, it is expected that use of this option will be rare).

Table 2F: Attributes required for a survey data spatial dataset – fauna habitat mapping

Feature class: Point and/or polygon ⁸ . Usage: The discrete fauna habitats mapped during the field surveys are to be defined using contiguous polygons. File naming convention: 2F_FaunaHabitat.			
Field	Type	Description	Example
FaunaHab	Text (254)	Description of the fauna habitat.	Spinifex sand plain
CreationYr	Long Integer (5)	The year the habitat mapping polygons were created ⁹ .	2017
Author	Text (100)	The name of the person or group who authored the survey report and datasets. This should match the author named in the Metadata and Licensing Statement.	ABC Consulting
Comments	Text (254)	Additional information about the fauna habitat, if any.	Is disturbed... (etc.)
Citation	Text (254)	A full citation for the accompanying survey report. This should match the citation provided in the Metadata and Licensing Statement.	ABC Consulting (2018). Detailed Terrestrial Vertebrate Fauna Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments.

⁸ If a survey has produced fauna habitat data best represented by a combination of points, e.g. bat caves, and polygons, e.g. spinifex sand plain, a separate shapefile for each geometry type is required. If providing shapefiles for more than one geometry type each file name should be suffixed with ‘_pt’ or ‘_py’ as appropriate.

⁹ Fauna habitat mapping may be based on multiple surveys, over multiple years, by multiple zoologists. As such, it is difficult to attach a precise date to a fauna habitat map based on survey timing. However, including the year of creation of the fauna habitat mapping polygons in this field gives an indication of its currency for future reference. For the dates of the surveys that contributed to the fauna habitat mapping, users should refer to the methodology section of the associated fauna survey report.