

Guide for documenting references from RLE Assessments in XML format

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**Provita**

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Content Table

[Content Table 2](#_Toc20069834)

[1. Brief introduction to XML format 3](#_Toc20069835)

[2. Structure of Red List of Ecosystem xml-documents 7](#_Toc20069836)

[2.1. Document: Case studies 8](#_Toc20069837)

[3. Node documentation 11](#_Toc20069838)

[3.1. Root element: Case Studies 11](#_Toc20069839)

[3.2. Node: Case Study 11](#_Toc20069840)

[3.2.1. Node: Case Study Names 12](#_Toc20069841)

[3.2.1.1. Node: Case Study Name 13](#_Toc20069842)

[3.2.2. Node: Scope 14](#_Toc20069843)

[3.2.2.1. Node: Scope description 14](#_Toc20069844)

[3.2.2.2. Node: Scope classification 15](#_Toc20069845)

[3.2.2.2.1. Node: Scope classification element 16](#_Toc20069846)

[3.2.3. Node: Assessment information 17](#_Toc20069847)

[3.2.3.1. Node: Reference label 17](#_Toc20069848)

[3.2.3.2. Node: Assessment date 18](#_Toc20069849)

[3.2.3.3. Node: Assessment authors 18](#_Toc20069850)

[3.2.3.3.1. Node: Author 19](#_Toc20069851)

[3.2.3.4. Node: Assessment collaborators 19](#_Toc20069852)

[3.2.3.4.1. Node: Collaborator 20](#_Toc20069853)

[3.2.3.5. Node: Assessment reviewers 20](#_Toc20069854)

[3.2.3.5.1. Node: Reviewer 20](#_Toc20069855)

[3.2.3.6. Node: Assessment Keywords 21](#_Toc20069856)

[3.2.3.6.1. Node: Keyword 21](#_Toc20069857)

[3.2.4. Node: Assessment target 22](#_Toc20069858)

[3.2.4.1. Node: Assessment target id 22](#_Toc20069859)

[3.2.4.2. Node: Assessment target descriptions 23](#_Toc20069860)

[3.2.4.2.1. Node: Assessment target description 24](#_Toc20069861)

[3.2.4.3. Node: Assessment target names 24](#_Toc20069862)

[3.2.4.3.1. Node: Assessment target name 24](#_Toc20069863)

[3.2.4.4. Node: Characteristic native biota 25](#_Toc20069864)

[3.2.4.4.1. Node: Taxon list 26](#_Toc20069865)

[3.2.4.4.2. Node: Taxon 27](#_Toc20069866)

[3.2.4.4.3. Node: Biota Summaries 27](#_Toc20069867)

[3.2.4.4.4. Node: Biota Summary 28](#_Toc20069868)

[3.2.4.5. Node: Abiotic environment 29](#_Toc20069869)

[3.2.4.5.1. Node: Abiotic Summaries 30](#_Toc20069870)

[3.2.4.5.1.1. Node: Abiotic Summary 30](#_Toc20069871)

[3.2.4.6. Node: Biotic processes 30](#_Toc20069872)

[3.2.4.6.1. Node: Biotic processes summaries 31](#_Toc20069873)

[3.2.4.6.1.1. Node: Biotic processes summary 32](#_Toc20069874)

[3.2.4.7. Node: Ecosystem services 33](#_Toc20069875)

# **Brief introduction to XML format**

Properly formatted XML documents will allow a standardized reporting of IUCN Red List Ecosystem (RLE) assessments in a semi-structured format. The XML format is a plain text format, with data organized in **elements** that have some value surrounded by a pair of **tags**. Tags are enclosed in brackets, and closing tags are preceded by a forward-slash, like this:

<journal>Biological Conservation</journal>

This snip of code simply tells that *Biological Conservation* is the "journal" where the assessment was published. Tags discriminate capital words, spaces and symbols, so tag names should be used consistently across documents. For example:

<journal>Biological Conservation</journal>

**is different to**

<Journal>Biological Conservation</Journal>

Tags can have **attributes** (like ids, types, language, etc.), that contain data or metadata related to a specific element. Attributes will show this format:

<author name="Regan, Tracey"></author>

In this case, name= “Regan, Tracey” is an attribute that indicates that the author’s name is Regan, Tracey. In this example, “name” will be the attribute code for author’s name.

Elements in the xml file can be nested within each other (**parent-child**), or can be **siblings** to each other.

Each xml file needs to have an initial declaration and a **root element**, in which all other elements will be nested.

The reference xml-document has a root node called "Reference", that contains multiple reference-elements. A typical reference-element will describe the reference type, authors, title, year of publication, location of publication, etc. For example:

<Reference>

<Ref-information date="" updated-by="" status="">

<ref-label></ref-label>

<authors>

<author name="">

<affiliations>

<affiliation></affiliation>

</affiliations>

</author>

</authors>

</Ref-information>

**Empty nodes** can be used as placeholders within the xml-file structure. They can be written as a combination of opening and closing tags:

<Ref-information date="" updated-by="" status="">

</Ref-information>

or as a single tag with closing “/” at the end:

<Ref-information date="" updated-by="" status=""/>

We will write empty nodes adding “/” at the end of the single tag to indicate that it is empty and it is not an unfilled forgotten node. An exception will be parent nodes, which will be written as a combination of opening and closing tags so as not to change the nodes structure. For example:

<author name="">

<affiliations>

<affiliation/>

</affiliations>

</author>

In this example, “author” is empty but not written as a single tag because it is a parent node of “affiliations” and if we type it as a simple tag, the child node will not appear in the structure. While, “affiliation” is also empty and written as a single tag because it is not a parent node.

This is a more elaborate example with some of the tags we will include in our case study documentation:

<Reference>

<Ref-information date="" updated-by="" status="">

<ref-label></ref-label>

<authors>

<author name="">

<affiliations>

<affiliation></affiliation>

</affiliations>

</author>

</authors>

…

<ref-titles>

<ref-title lang=""></ref-title>

</ref-titles>

<journal></journal>

<book-title></book-title>

<year></year>

<volume></volume>

<number></number>

<pages></pages>

<month></month>

…

<DOI></DOI>

<ISSN></ISSN>

<EISSN></EISSN>

<keywords>

<keyword></keyword>

</keywords>

…

<citation></citation>

<file-location>

<domain></domain>

<path></path>

</file-location>

</Ref-information>

<Ecosystem-Risk-Assessment-Content date="" updated-by="" status="">

<Risk-Assessment-Protocol>

<RAP-name></RAP-name>

<RAP-acronym></RAP-acronym>

<RAP-version></RAP-version>

<RAP-source></RAP-source>

<RAP-web-summary lang=""></RAP-web-summary>

</Risk-Assessment-Protocol>

<Available-information>

<number-assessment-targets units=""></number-assessment-targets>

…

<category-rationale></category-rationale>

<category-tables></category-tables>

<data-directory></data-directory>

</Available-information>

</Ecosystem-Risk-Assessment-Content>

</Reference>

The following section specifies the format, type of content and purpose of each of the nodes (tags) that are part of the XML structure for documenting case studies. However, there are some general aspects to consider in the entire document:

* if there is no information available for a particular node in the original document, it must be closed using the forward slash "/" (see text below).
* If in a reference there is no information for a given node, the use of the forward slash “/” at the end of the tag must be placed in the lowest order node for which information is lacking (children nodes).
* In general, the formal language used for text description within each node is “English”, only nodes using the @lang attribute could include descriptions in a different language.
* For all those nodes that contain numerical information, the decimal units will be separated with a period ".".
* When filling a descripting node, the text should end with a period “.”. Example:

<RAP-web-summary lang="en">The IUCN Red List Categories and Criteria according to IUCN guidelines (Bland et al., 2016) was applied. The IUCN Red List of Ecosystems includes eight categories ofrisk analogous to those of the IUCN Red List of Threatened Species.</RAP-web-summary>

* Texts should not include the spetial characters “&” “<” “>”, because they are not readed as text in the XML file. They should be replaced by an “and” “less than” or “more than”.
* Phrases as “Table 1.” “Figure 2”, “see here”….. should be deleted because the material related to these phrases will not be included.

# **Structure of Red List of Ecosystem xml-documents**

In order to document ecosystem assessments, a common, minimal structure is needed. This structure is used to order the data in logical units within a hierarchy, while also allowing for certain flexibility. We will call each element in this structure a "node."

The first step is to develop a list of all the available reference documents ("References" documents), The next step is the development of the document describing the actual risk assessment for each ecosystem ("Case studies" documents).

In the next sections, you will find a detailed explanation of the structure of a typical "reference" xml-document, providing a standardized system to summarize:

a) Reference information of the RLE assessment (author, publishing date, reference label, keywords, web repository, ISBN, etc),

b) Ecosystem Risk Assessment content (risk assessment protocol, available information of the assessment in the document),

c) Information on the revisions (curation) and status of the xml-document prior to its addition to the RLE Database.

# **Document: References**

As mentioned, this xml document aims to systematize all the information related to key documents including ecosystems’ collapse risk assessments that have applied the IUCN RLE Categories and Criteria or some other international standard.

The exported xml-document has a root element called <Reference>, one xml-document must be completed for each reference, one document must not allow more than one reference. A typical <Reference> element, describing bibliographic information, quality and type of Ecosystem Risk Assessment information available and curation efforts would include some of this nodes (the entire structure will be developed in the next sections, a full structure model could be found at XXXXX:

<Reference>

<Ref-information date="" updated-by="" status="">

<ref-label></ref-label>

<authors></author>

<editors></editors>

<ref-titles></ref-titles>

<journal></journal>

<book-title></book-title>

<year></year>

<volume></volume>

<number></number>

<pages></pages>

<month></month>

<abstract></abstract>

<publisher></publisher>

<address></address>

<type></type>

<language></language>

<DOI></DOI>

<ISSN></ISSN>

<EISSN></EISSN>

<keywords></keywords>

<research-areas></research-areas>

<author-email></author-email>

<funding-acknowledgement></funding-acknowledgement>

<funding-text></funding-text>

<cited-references></cited-references>

<urls></urls>

<citation></citation>

<file-location></file-location>

</Ref-information>

<Ecosystem-Risk-Assessment-Content date="" updated-by="" status="">

<Risk-Assessment-Protocol></Risk-Assessment-Protocol>

<Available-information>

<number-assessment-targets units=""></number-assessment-targets>

<AT-list></AT-list>

<AT-description></AT-description>

<AT-maps></AT-maps>

<AT-spatial-data></AT-spatial-data>

<AT-images></AT-images>

<assessment-protocol-methods></assessment-protocol-methods>

<indicator-description></indicator-description>

<indicator-results-description></indicator-results-description>

<indicator-results-tables></indicator-results-tables>

<indicator-results-figures></indicator-results-figures>

<category-rationale></category-rationale>

<category-tables></category-tables>

<data-directory></data-directory>

</Available-information>

</Ecosystem-Risk-Assessment-Content>

<Content-Curations>

<content-curation date="" reviewer="" status="">

<edit-description>

<nodes-checked></nodes-checked>

</edit-description>

</content-curation>

</Content-Curations>

</Reference>

# **Node documentation**

# **Root element: Reference**

Tag: <Reference>

Parent: none

Children: Ref-information, Ecosystem-Risk-Assessment-Content, Content-Curations

Content: Represents a reference. Each Reference contains the information related to one publication of an ecosystem risk assessment.

Attributes: none

Example:

<Reference>

<Ref-information date="2019-07-30" updated-by="ACU" status="update required">

<Ecosystem-Risk-Assessment-Content date="2019-07-30" updated-by="ACU" status="completed">

<Content-Curations>

</Reference>

# **Node: Reference Information**

Tag: <Ref-information>

Parent: Reference

Children: ref-label, authors, editors, ref-titles, journal, book-title, year, volume, number, pages, month, abstract, publisher, address, type, language, DOI, ISSN, EISSN, keywords, research-areas, author-email, funding-ackhowledgement, funding-text, cited-references, urls, citation, file-location

Content: element containing all information related to the bibliographic reference provided by the publication of an ecosystem risk assessment, this could include author’s name and affiliation, editors, reference title, journal or book title, reference type, web repository, etc.

Attributes: id, name

* @date = last update of this section in YYYY-MM-DD format.
* @updated-by = person(s) who filled up all information nodes with initials in upper case.
* @status = “completed”, “update required” (some information available, but not yet filled in), “incomplete” (required fields cannot be filled due to lack of information), “pending” (awaiting input from authors or other sources to fill in).

Examples:

<Reference>

<Ref-information date="2019-07-30" updated-by="ACU" status="update required">

</Reference>

# **Node: Reference label**

Tag: <ref-label>

Parent: ref-information

Children: none

Content: It contains a short name or acronym of reference. Labels include the last name of first author, one or two keywords or fragments from the title, and the year of publication, all joined by underscores (“\_”). This code should be given by the supervisor and will not be arbitrary assigned.

Attributes: none

Example:

<ref-label>Bland\_MarineEcosystem\_2018</ref-label>

# **Node: Authors**

Tag: <authors>

Parent: ref-information

Children: author

Content: Element containing a list of the authors of the reference. This nodes must include all the authors and collaborators considered as part of the ecosystem risk assessment elaboration.

Attributes: none

Example:

<authors>

<author name="Bland, Lucile">

<affiliations>

<affiliation>School of Life and Environmental Sciences, Centre for Integrative Ecology, Deakin University, Burwood, Victoria 3125, Australia. </affiliation>

</affiliations>

</author>

<author name="Watermeyer, Kate">

<affiliations>

<affiliation>School of Life and Environmental Sciences, Centre for Integrative Ecology, Deakin University, Burwood, Victoria 3125, Australia. </affiliation>

<affiliation>Marine Research Institute (Ma-Re) and Department of Biological Sciences, University of Cape Town, South Africa.</affiliation>

</affiliations>

</author>

</authors>

# **Node: Author**

Tag: <author>

Parent: authors

Children: affiliations

Content: Element containing the attribute name of one author. Authors usually perform and write the final assessment published.

Attributes: name

* @name: attribute containing the name of the author. Preferred format: “Last Name, First Name” or “Last Name, Initials” (in the latter case, do not separate or follow the initials with “.”).

Example:

When the First Name of the authors is available:

<author name="Bland, Lucile">

<affiliations>

<affiliation>School of Life and Environmental Sciences, Centre for Integrative Ecology, Deakin University, Burwood, Victoria 3125, Australia </affiliation>

</affiliations>

</author>

When only initials of the authors is known:

<author name="Bland, L">

<affiliations>

<affiliation>School of Life and Environmental Sciences, Centre for Integrative Ecology, Deakin University, Burwood, Victoria 3125, Australia </affiliation>

</affiliations>

</author>

# **Node: Affiliations**

Tag: <affiliations>

Parent: author

Children: affiliation

Content: Element containing the list of affiliations from the author of the ecosystem risk assessment.

Attributes: none

Example:

<affiliations>

<affiliation>School of Life and Environmental Sciences, Centre for Integrative Ecology, Deakin University, Burwood, Victoria 3125, Australia. </affiliation>

<affiliation>Marine Research Institute (Ma-Re) and Department of Biological Sciences, University of Cape Town, South Africa.</affiliation>

</affiliations>

# **Node: Affiliation**

Tag: <affiliation>

Parent: affiliations

Children: none

Content: Element containing information of the author´s affiliation. In a research article, the authors will list their affiliation, usually with a university or research institution; in case of books or report author´s affiliation could be related to the institution involved with the ecosystem risk assessment elaboration.

Attributes: none

Example:

<affiliation>School of Life and Environmental Sciences, Centre for Integrative Ecology, Deakin University, Burwood, Victoria 3125, Australia. </affiliation>

# **Node: Editors**

Tag: <editors>

Parent: ref-information

Children: editor

Content: Element containing the list of editors involved in the reviewing process of the ecosystem risk assessment document.

Attributes: none

Example:

<editors>

<editor name="Keith, David">

<affiliations>

<affiliation>Centre for Ecosystem Science, School of Biological, Earth and Environmental Science, University of New South Wales, Kensington 2052, New South Wales, Australia. </affiliation>

</affiliations>

</editor>

</editors>

# **Node: Editor**

Tag: <editor>

Parent: editors

Children: affiliations

Content: Element containing the name of the editor involved in the reviewing process of the ecosystem risk assessment document. The journal editor plays a central role in stewarding peer review at a journal, it is a common figure among scientific journal publications; sometimes, the editor is not explicit in the document and it will be strongly recommended to obtain this data from the journal webpage. It is important to note that in references as books, reports and conference proceedings this figure might not be included as part of the ecosystem risk assessment assessor team.

Attributes: name

* @name: attribute containing the name of the author. Preferred format: “Last Name, First Name” or “Last Name, Initials” (in the latter case, do not separate or follow the initials with “.”).

Example:

<editor name="Keith, David">

<affiliations>

<affiliation>Centre for Ecosystem Science, School of Biological, Earth and Environmental Science, University of New South Wales, Kensington 2052, New South Wales, Australia. </affiliation>

</affiliations>

</editor>

# **Node: Affiliations**

Tag: <affiliations>

Parent: editor

Children: affiliation

Content: Element containing the list of affiliations from the editor of the ecosystem risk assessment.

Attributes: none

Example:

<affiliations>

<affiliation>School of Life and Environmental Sciences, Centre for Integrative Ecology, Deakin University, Burwood, Victoria 3125, Australia. </affiliation>

<affiliation>Marine Research Institute (Ma-Re) and Department of Biological Sciences, University of Cape Town, South Africa.</affiliation>

</affiliations>

# **Node: Affiliation**

Tag: <affiliation>

Parent: affiliations

Children: none

Content: Element containing information of the editor´s affiliation. In a research article, the editor will list their affiliation, usually with a university or research institution; in case of books or report editor´s affiliation could be related to the institution involved with the ecosystem risk assessment elaboration.

Attributes: none

Example:

<affiliation>School of Life and Environmental Sciences, Centre for Integrative Ecology, Deakin University, Burwood, Victoria 3125, Australia. </affiliation>

# **Node: Reference titles**

Tag: <ref-titles>

Parent: ref-information

Children: ref-title

Content: List of alternative names for the reference title in the different languages in which it is available. It must always include the name in English and the name in the native language of the assessment (if different from English).

Attributes: none

Example:

<ref-titles>

<ref-title lang="fr">La Liste Rouge des écosystèmes en France: Les forêts méditerranéennes de France métropolitaine</ref-title>

<ref-title lang="en">The Red List of Ecosystems of France: Mediterranean forests from the metropolitan France</ref-title>

</ref-titles>

# **Node: Reference title**

Tag: <ref-title>

Parent: ref-titles

Children: none

Content: Alternative names for the reference’s title in the different languages in which it is available. The content of this node must include the entire title, including title and subtitle information (if there is any).

Attributes: language

* @lang = for specifying the language using a two-letter iso-code (en: English, fr: French, sp: Spanish, de: German, etc). See the Glossary for more details.

Example:

<ref-title lang="fr">La Liste Rouge des écosystèmes en France: Les forêts méditerranéennes de France métropolitaine</ref-title>

<ref-title lang="en">The Red List of Ecosystems of France: Mediterranean forests from the metropolitan France</ref-title>

# **Node: Journal**

Tag: <journal>

Parent: ref-information

Children: none

Content: Element containing the name of the scientific journal where the reference document was published. The complete name of the journal must be included, avoid acronyms. This node applies in the case the document is available in a peer reviewed journal, if is not (book, conference proceedings) it should be closed with a “/” at the end of the node.

Attributes: none

Example:

When the reference was published in a scientific journal:

<journal>Biological Conservation</journal>

When the reference was published as a different type of reference:

<journal/>

# **Node: Book title**

Tag: <book-title>

Parent: ref-information

Children: none

Content: Element containing the name of the book title. This node must be filled when the ecosystem risk assessment was published in a “book” or a “book chapter”, if is not (journal, conference proceedings) it should be closed with a “/” at the end of the node. In this case the exactly name of the book must be included (English or native language).

Attributes: none

Example:

When the reference was published in a book:

<book-title>Libro Rojo de los Ecosistemas Terrestres de Venezuela</book-title>

When the reference was published as a different type of reference:

<book-title/>

# **Node: Year**

Tag: <year>

Parent: ref-information

Children: none

Content: Element containing the year when the ecosystem risk assessment was published. It must contain the last year edition available, please avoid including “first edition” data if is available.

Attributes: none

Example:

<year>2011</year>

# **Node: Volume**

Tag: <volume>

Parent: ref-information

Children: none

Content: Element containing the volume where the ecosystem risk assessment is available. This node applies for scientific journals or periodic publications, if this data is not available, please close the node with a “/” at the end.

Attributes: none

Example:

<volume>9</volume>

# **Node: Number**

Tag: <number>

Parent: ref-information

Children: none

Content: Element containing the number of the volume where the ecosystem risk assessment is available. This node applies for scientific journals or periodic publications with more than an issue per year, if this data is not available, please close the node with a “/” at the end.

Attributes: none

Example:

<number>2</number>

# **Node: Pages**

Tag: <pages>

Parent: ref-information

Children: none

Content: Element containing the total number of pages from the ecosystem risk assessment document (in case of books and book’s chapters) or the range of pages where the ecosystem risk assessment could be located (scientific journals, conference proceedings, periodic publications).

Attributes: none

Example:

When the reference is available in a book:

<pages>636</pages>

When the reference is available in a scientific journal:

<pages>125-189</pages>

# **Node: Month**

Tag: <month>

Parent: ref-information

Children: none

Content: Element containing the month when the ecosystem risk assessment was published. This node applies to those periodicals where it is identified with the month instead of the volume of the publication

Attributes: none

Example:

<month>March</month>

# **Node: Abstract**

Tag: <abstract>

Parent: ref-information

Children: none

Content: Element containing the abstract provided by the authors in the ecosystem risk assessment

Attributes: none

Examples: