

SPART, a versatile and standardized data exchange format for species partition information

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Comments and Caveats:

- The sentence parsing is achieved using a prototype natural language processing pipeline written in Python and may include occasional errors in sentence segmentation.
- Depending on the source of the input text, the Sentence Audit may contain occasional html artefacts that are parsed as sentences (E.g. "Download figure. Open in new tab").
- Always consult the original research paper as the true reference source for the text.

Contact Information:

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All queries, feedback or suggestions are also very welcome.

Research Paper Sections:

The sections of the research paper input text parsed in this audit.

[illegible]

Title **SPART, a versatile and standardized data exchange format for species partition information**

S1 [001] Abstract

S1 [002] A wide range of data types can be used to delimit species and various computer-based tools dedicated to this task are now available.

A wide range ...
... of data types can be used ...
... to delimit species ...
... and various computer-based tools dedicated ...
... to this task are now available.

S1 [003] Although these formalized approaches have significantly contributed to increase the objectivity of SD under different assumptions, they are not routinely used by alpha-taxonomists.

Although these formalized approaches have significantly contributed ...
... to increase the objectivity ...
... of SD ...
... under different assumptions, ...
... they are not routinely used ...
... by alpha-taxonomists.

S1 [004] One obvious shortcoming is the lack of interoperability among the various independently developed SD programs.

One obvious shortcoming is the lack ...
... of interoperability ...
... among the various independently developed SD programs.

S1 [005] Given the frequent incongruences between species partitions inferred by different SD approaches, researchers applying these methods often seek to compare these alternative species partitions to evaluate the robustness of the species boundaries.

Given the frequent incongruences ...
... between species partitions inferred ...
... by different SD approaches, ...
... researchers applying these methods often seek ...
... to compare these alternative species partitions ...
... to evaluate the robustness ...
... of the species boundaries.

S1 [006] This procedure is excessively time consuming at present, and the lack of a standard format for species partitions is a major obstacle.

This procedure is excessively time consuming ...
... at present, ...

... and the lack ...
... of a standard format ...
... for species partitions is a major obstacle.

S1 [007] Here we propose a standardized format, SPART, to enable compatibility between different SD tools exporting or importing partitions.

Here we propose a standardized format, ...
... SPART, ...
... to enable compatibility ...
... between different SD tools exporting ...
... or importing partitions.

S1 [008] This format reports the partitions and describes, for each of them, the assignment of individuals to the “inferred species”.

This format reports the partitions ...
... and describes, ...
... for each ...
... of them, ...
... the assignment ...
... of individuals ...
... to the “inferred species”.

S1 [009] The syntax also allows to optionally report support values, as well as original trees and the full command lines used in the respective SD analyses.

The syntax also allows ...
... to optionally report support values, ...
... as well ...
... as original trees ...
... and the full command lines used ...
... in the respective SD analyses.

S1 [010] Two variants of this format are proposed, overall using the same terminology but presenting the data either optimized for human readability (matricial SPART) or in a format in which each partition forms a separate block (SPART.XML).

Two variants ...
... of this format are proposed, ...
... overall ...
... using the same terminology ...
... but presenting the data either optimized ...
... for human readability ...
... (matricial SPART) ...
... or in a format ...
... in which each partition forms a separate block ...
... (SPART.XML).

S1 [011] ABGD, DELINEATE, GMYC, PTP and TR2 have already been adapted to output SPART files and a new version of LIMES has been developed to import, export, merge and split them.

ABGD, ...

... DELINEATE, ...
 ... GMYC, ...
 ... PTP ...
 ... and TR2 have already been adapted ...
 ... to output SPART files ...
 ... and a new version ...
 ... of LIMES has been developed ...
 ... to import, ...
 ... export, ...
 ... merge ...
 ... and split them.

S2 [012] Introduction

S2 [013] Species delimitation (SD) is a burgeoning, fully fledged research field in systematic biology (Sites & Marshall 2003; Camargo & Sites 2013; Flot 2015, Ducasse et al. 2020).

Species delimitation ...
 ... (SD) ...
 ... is a burgeoning, ...
 ... fully fledged research field ...
 ... in systematic biology ...
 ... (Sites & Marshall 2003; ...
 ... Camargo & Sites 2013; ...
 ... Flot 2015, ...
 ... Ducasse et al. 2020).

S2 [014] SD benefits from the interpretation of species as independent evolutionary lineages (De Queiroz 1998, 2007) that can be distinguished from each other using a variety of operational SD criteria (Samadi & Barberousse 2006).

SD benefits ...
 ... from the interpretation ...
 ... of species ...
 ... as independent evolutionary lineages ...
 ... (De Queiroz 1998, 2007) ...
 ... that can be distinguished ...
 ... from each other ...
 ... using a variety ...
 ... of operational SD criteria ...
 ... (Samadi & Barberousse 2006).

S2 [015] In integrative taxonomy (Dayrat 2005; Padial et al. 2010), various lines of evidence and a wide range of data types can be used in formalised analytical workflows to propose species hypotheses, from DNA barcodes to phylogenomic data, discrete morphological characters, morphometric measurements, ecological traits, geographic occurrence, bioacoustic signals, metabolomic profiles, and others (Miralles et al. 2020).

In integrative taxonomy ...
 ... (Dayrat 2005; ...

... Padial et al. 2010), ...
 ... various lines ...
 ... of evidence ...
 ... and a wide range ...
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 ... from DNA barcodes ...
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 ... ecological traits, ...
 ... geographic occurrence, ...
 ... bioacoustic signals, ...
 ... metabolomic profiles, ...
 ... and others ...
 ... (Miralles et al. 2020).

S2 [016] If many, and among them the earliest, formalised SD procedures are mostly carried out manually, e.g. by comparing trees with the geographic occurrence of individuals, calculating correlations between geographic and genetic distances, assessing steepness of hybrid zones, or seeking for correlation between genetic distance and morphological characters (Good & Wake 1992, Wiens & Penkrot 2002, Vieites et al. 2009, Flot et al. 2010, Weisrock et al. 2010, Puillandre et al. 2012a, Miralles & Vences 2013, Derkarabetian & Hedin 2014, Dufresnes et al. 2015), a substantial number of computer-based tools has been developed to delimit species, often based on statistical criteria.

If many, ...
 ... and ...
 ... among them the earliest, ...
 ... formalised SD procedures are mostly carried out manually, ...
 ... e.g. ...
 ... by comparing trees ...
 ... with the geographic occurrence ...
 ... of individuals, ...
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 ... between geographic ...
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 ... Flot et al. 2010, ...
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 ... Puillandre et al. 2012a, ...
 ... Miralles & Vences 2013, ...
 ... Derkarabetian & Hedin 2014, ...
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 ... a substantial number ...

End of Sample Audit

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