Sylvie Campagne

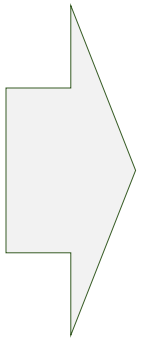
Introduction to systematic reviews

Formation FRB-CESAB 6th to 10th October 2025

Presentations' structure

eifer
by EDF and KIT

1. **The importance of a Protocol**
2. **The protocol of a systematic review**
3. **Search for evidence**
4. **Screening the evidence**
5. **Reporting**



Le protocole

Base de données bibliographiques

Equation de recherche

Tri sur titre, résumé et texte integral

Importance des critères d'éligibilité

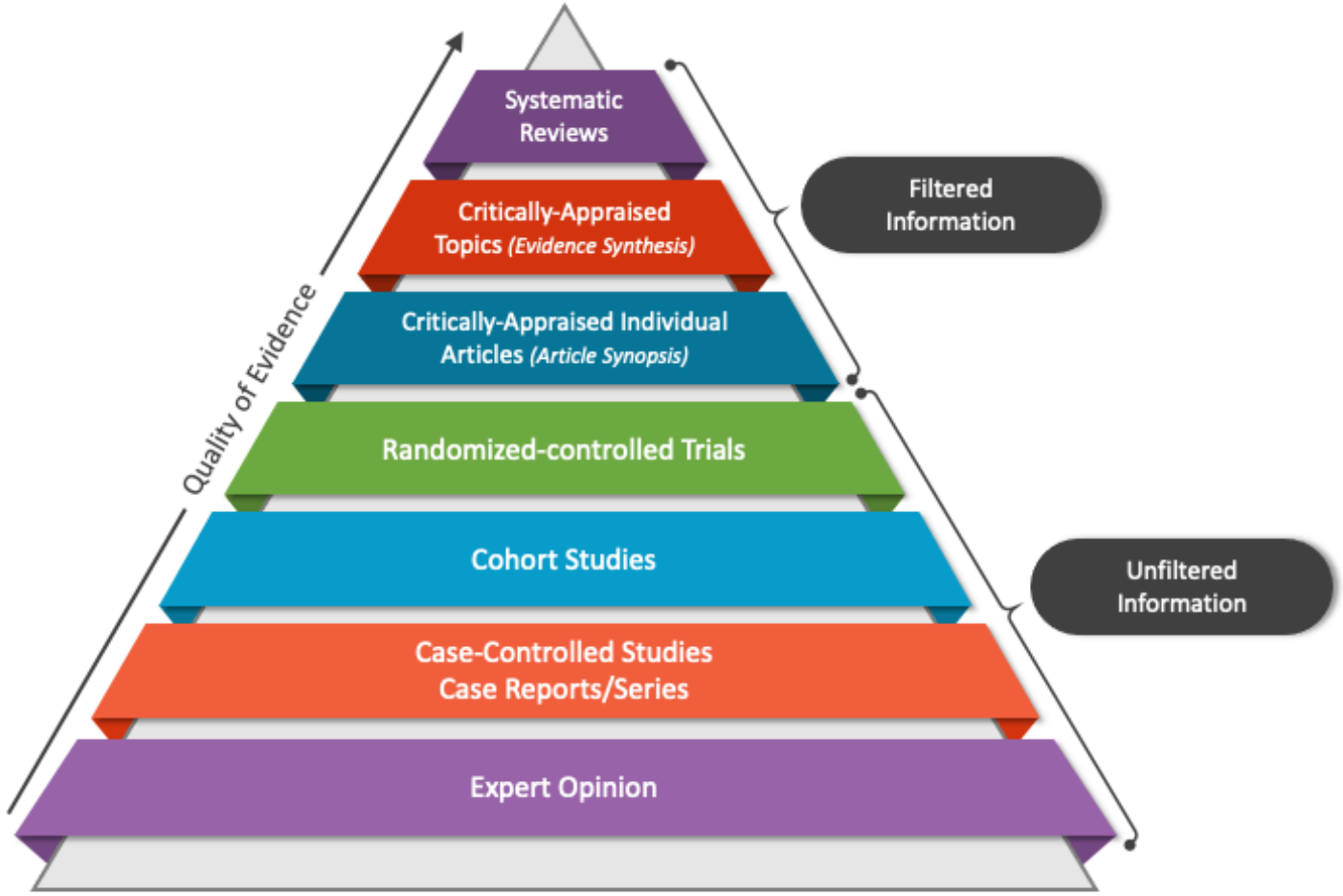
Le reporting

Levels of evidence

What is Evidence?

"The available body of facts or information indicating whether a belief or proposition is true or valid." Oxford English Dictionary

Generated by scientific studies, which are referred to as "primary" research



Hierarchy of evidence

(MEDICOWESOME)

Levels of evidence

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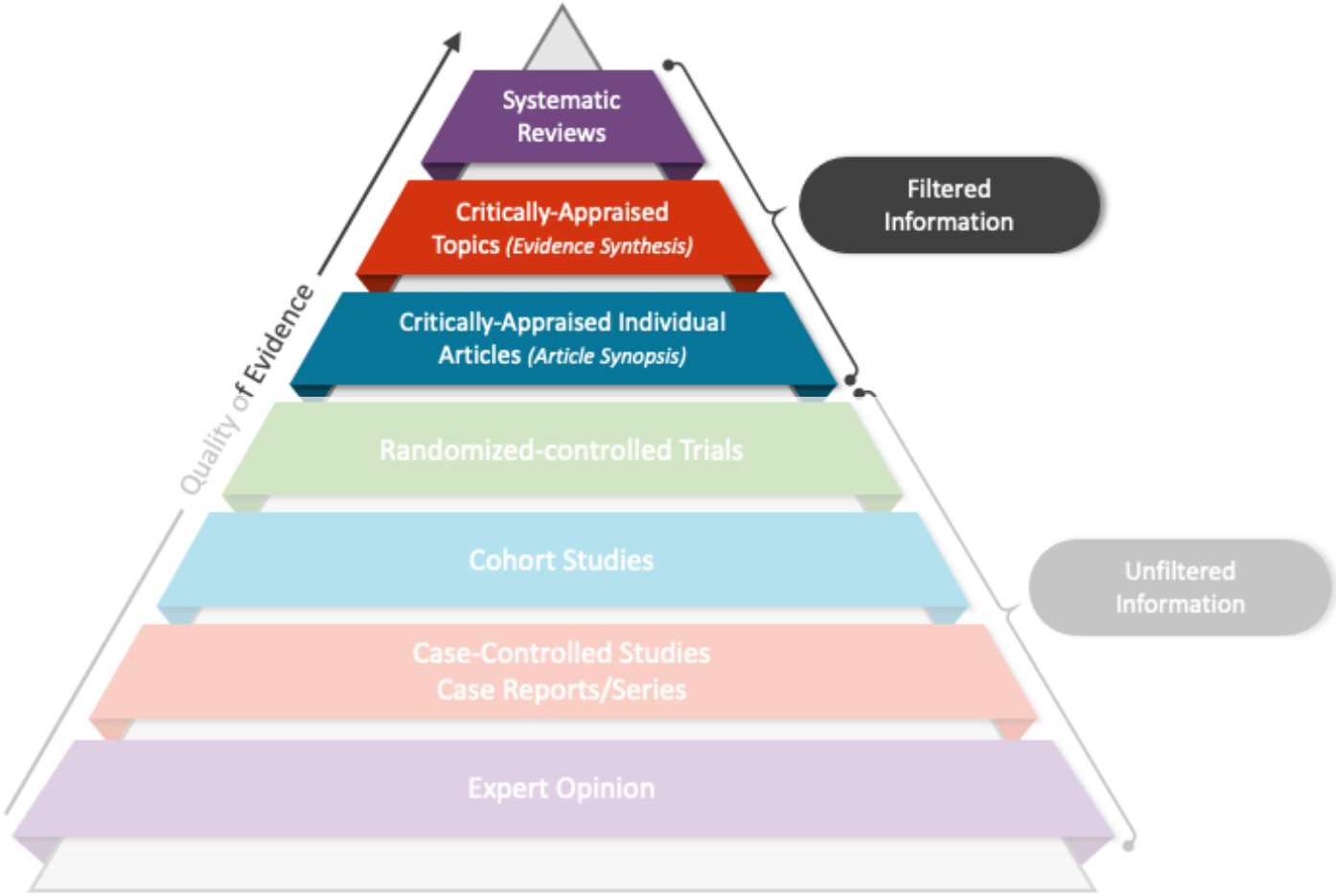


Hierarchy of evidence

(MEDICOWESOME)

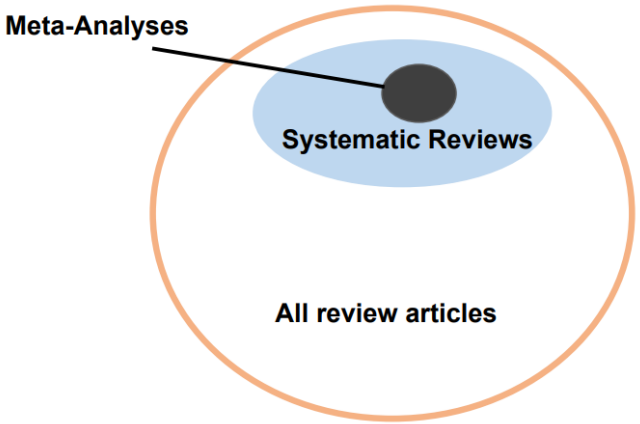
Literature review VS systematic review

by EDF and KIT

Knowledge or evidence synthesis

What is a Systematic Review?

"an evidence synthesis method that aims to answer a specific question as precisely as possible in an unbiased way. The method collates, critically appraises, and synthesizes all available evidence relevant to the question. Reviewers use pre-defined methods to identify risks of bias in the evidence itself, and to minimise bias in the way evidence is identified and selected, and thus provide reliable findings that could inform decision making" (CEE, 2018)



	Systematic Review	Literature Review
Definition	High-level overview of primary research on a focused question that identifies, selects, synthesizes, and appraises all high quality research evidence relevant to that question.	Qualitatively summarizes evidence on a topic using informal or subjective methods to collect and interpret studies.
Goals	Answer a focused clinical question Eliminate bias	Provide summary or overview of topic
Question	Clearly defined and answerable clinical question Recommend using PICO as a guide	Can be a general topic or a specific question
Components	Pre-specified eligibility criteria Systematic search strategy Assessment of the validity of findings Interpretation and presentation of results Reference list	Introduction Methods Discussion Conclusion Reference list
Number of Authors	Three or more	One or more
Timeline	Months to years Average eighteen months	Weeks to months
Requirements	Thorough knowledge of topic Perform searches of all relevant databases Statistical analysis resources (for meta-analysis)	Understanding of topic Perform searches of one or more databases
Value	Connects practicing clinicians to high quality evidence Supports evidence-based practice	Provides summary of literature on a topic

Systematic review and literature review

(Kysh, Lynn (2013): Difference between a systematic review and a literature review. figshare. Poster.https://doi.org/10.6084/m9.figshare.766364.v1)

The importance of a Protocol:
an under-recognised element of systematic reviews and meta-analysis

Why is it important to develop a Protocol?

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"Accurate, unbiased and concise synthesis of available evidence following clear methodology and transparent reporting is necessary to support effective environmental policy and management decisions"
(Pullin *et al.* 2022)

Pullin *et al. Environmental Evidence* (2022) 11:16
https://doi.org/10.1186/s13750-022-00269-9

Environmental Evidence

COMMENTARY Open Access

Check for updates

Standards of conduct and reporting in evidence syntheses that could inform environmental policy and management decisions

Andrew S. Pullin[1,11*], Samantha H. Cheng[2], Josephine D'Urban Jackson[3], Jacqualyn Eales[4], Ida Envall[5], Salamatu J. Fada[6,7], Geoff K. Frampton[8], Meagan Harper[9], Andrew N. Kadykalo[9], Christian Kohl[10], Ko Konno[11], Barbara Livoreil[12], Dakis-Yaoba Ouédraogo[13], Bethan C. O'Leary[14,15], George Pullin[16], Nicola Randall[17], Rebecca Rees[18], Adrienne Smith[19], Romain Sordello[20], Eleanor J. Sterling[21], Will M. Twardek[22] and Paul Woodcock[23]

Why is it important to develop a Protocol?

by EDF and KIT

Traditional approaches to reviewing literature may be susceptible to bias and result in incorrect decisions (Haddaway *et al.* 2020).

Despite the increasing popularity of systematic reviews in the environmental field, evidence synthesis methods continue to be poorly applied in practice (Haddaway *et al.* 2020).

PERSPECTIVE
https://doi.org/10.1038/s41559-020-01295-x
nature ecology & evolution
Check for updates

Eight problems with literature reviews and how to fix them

Neal R. Haddaway[1,2,3], Alison Bethel[4], Lynn V. Dicks[5,6], Julia Koricheva[7], Biljana Macura[2], Gillian Petrokofsky[8], Andrew S. Pullin[9], Sini Savilaakso[10,11] and Gavin B. Stewart[12]

Scientific principles should be followed:

A protocol aims at objectifying the results/conclusions:

- Replicability
- **Transparency, archiving**
- Consideration of biases (internal, external), Reliability

✓ provides a framework to achieve
✓ outlines a systematic approach

Maximizing reliability = published protocol + review (both peer-reviewed)

Reliability and replicability of evidence

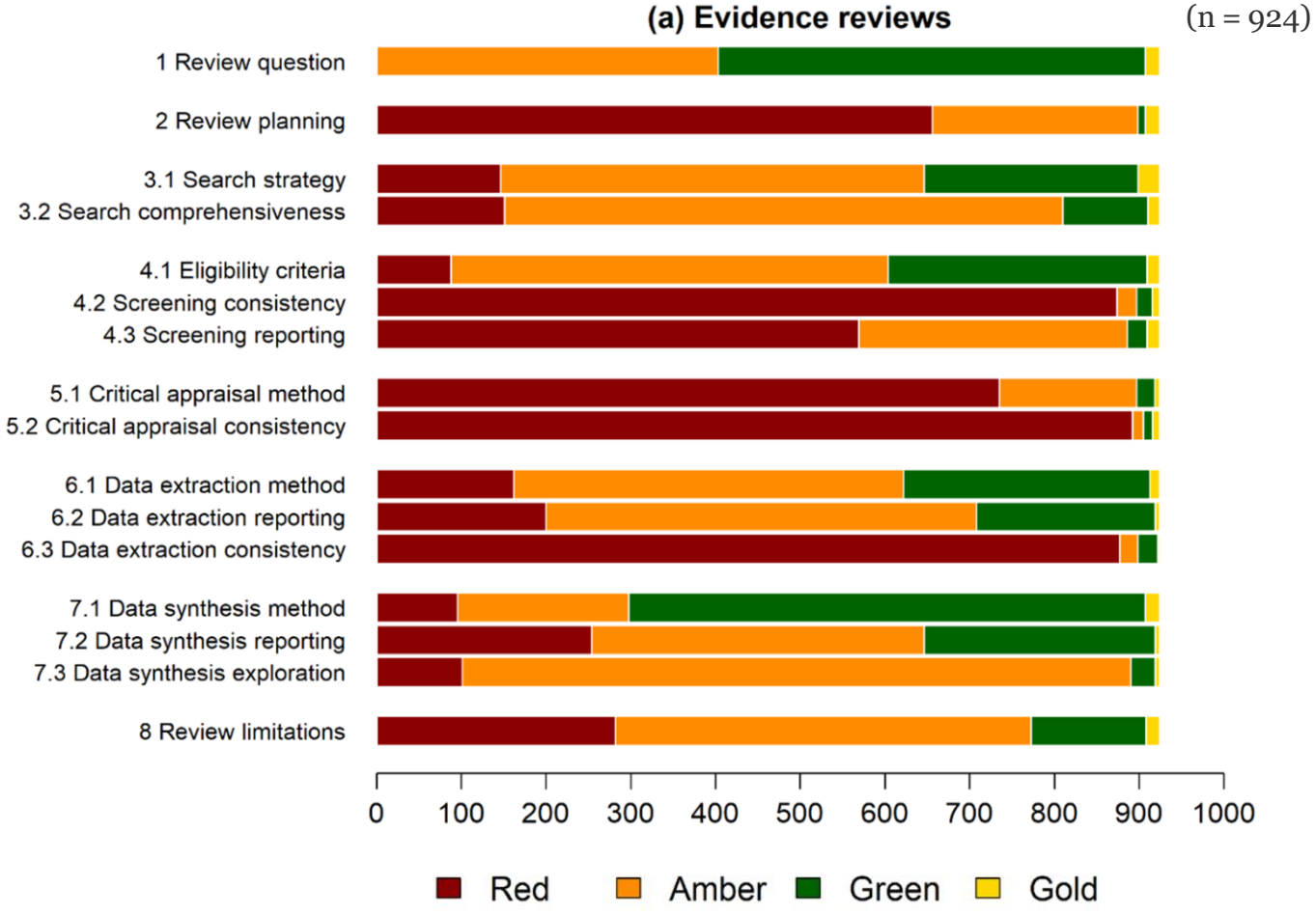
Commentary | Open access | Published: 19 April 2022

Standards of conduct and reporting in evidence syntheses that could inform environmental policy and management decisions

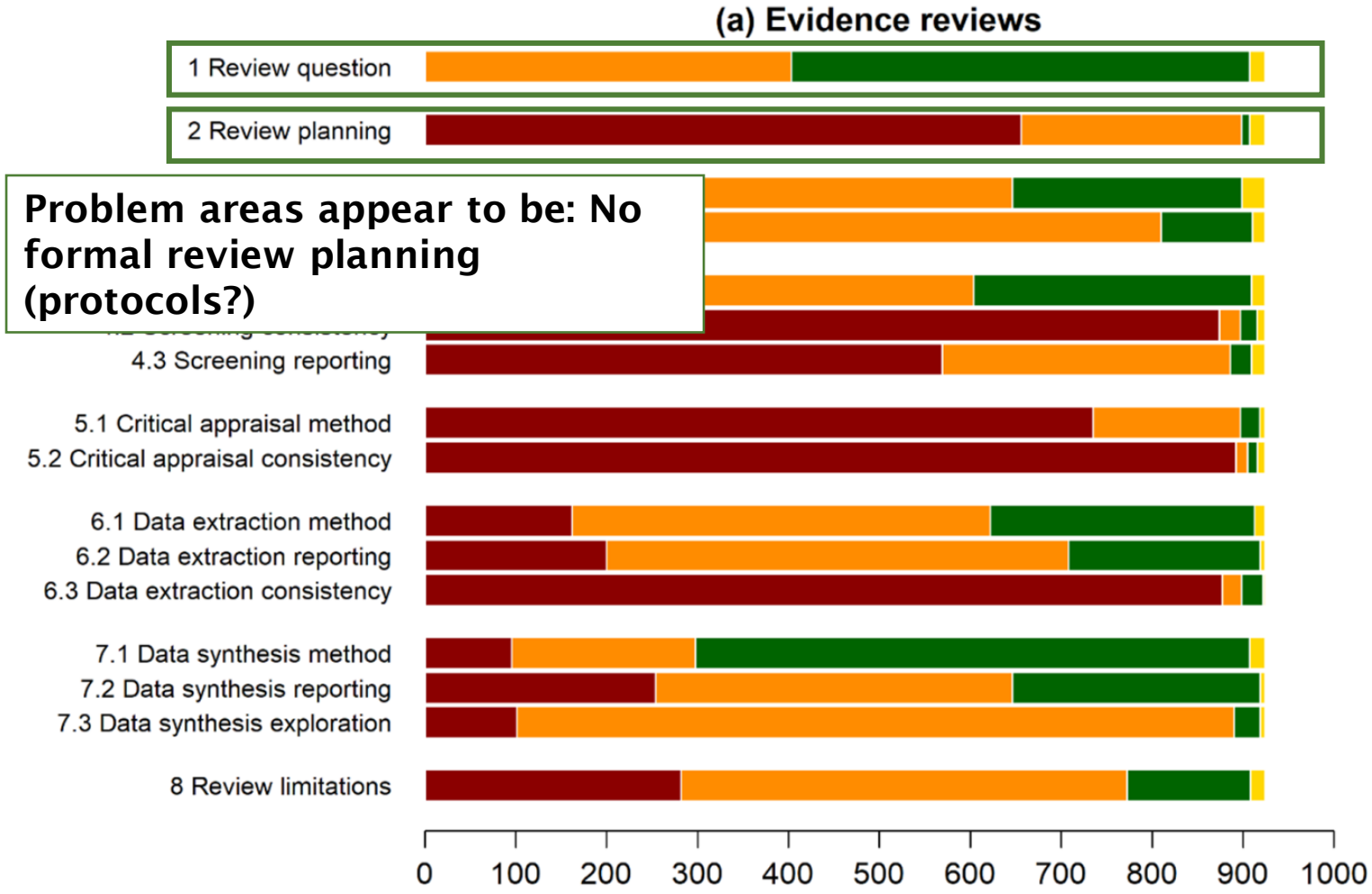
Andrew S. Pullin, Samantha H. Cheng, Josephine D'Urban Jackson, Jacqualyn Eales, Ida Envall, Salamatu J. Fada, Geoff K. Frampton, Meagan Harper, Andrew N. Kadykalo, Christian Kohl, Ko Konno, Barbara Livoreil, Dakis-Yaoba Ouédraogo, Bethan C. O'Leary, George Pullin, Nicola Randall, Rebecca Rees, Adrienne Smith, Romain Sordello, Eleanor J. Sterling, Will M. Twardek & Paul Woodcock

Environmental Evidence **11**, Article number: 16 (2022) | Cite this article

- Gold—The highest standards : high replicability and low potential for bias.
- Green—Standards that enable replication and reduce potential bias.
- Amber—Standards that lack **some** key elements that enable replication and reduce potential for bias.
- Red—Standards that lack **most** key elements that enable replication and reduce potential for bias.



Reliability and replicability of evidence reviews



(Pullin *et al.* 2022. *Environmental Evidence*. https://doi.org/10.1186/s13750-022-00269-9)

Problems without a protocol

by EDF and KIT

Mission creep:

Occurs when the review deviates from the initial objectives

What elements can evolve during the process?

- *Key definitions*
- *Search strategies and inclusion*
- *Appraisal criteria may alter over time or differ between reviewers*

What are the consequences?

- **not representative** of the evidence base because **important studies may have been omitted**
- Inaccurate and misleading
- Unrepeatable, not upgradable, not updateable

Haddaway *et al*. 2020. Nature ecology and evolution. https://doi.org/10.1038/s41559-020-01295-x

Problems without a protocol

by EDF and KIT

Lack of transparency/replicability:

An ability to repeat a review's methods exactly ('replicability')

If the reader can't understand:

- *how studies were identified, selected and synthesized*
- *which ones were excluded*,

What are the consequences?

Risk of bias cannot be assessed, and **unclear <u>subjective</u> decisions can't be fully trusted.**

Haddaway *et al*. 2020. Nature ecology and evolution. https://doi.org/10.1038/s41559-020-01295-x

Why is it important to develop a Protocol?

The CEE

- A review protocol provides a step-by-step guide for conducting Evidence reviews.
- Develop an a priori protocol before starting the review so that the process is clear and consistent.
- The protocol should contain specific guidelines to identify, screen relevant articles, extract data, and analyse the data.
- The protocol can help the review team replicate the work i.e. update the literature review when new research becomes available.

Guidelines and Standards for Evidence Synthesis in Environmental Management

Collaboration for Environmental Evidence

Collaboration for Environmental Evidence. 2018. Guidelines and Standards for Evidence synthesis in Environmental Management. Version 5.0 (AS Pullin, GK Frampton, B Livoreil & G Petrokofsky, Eds) www.environmentalevidence.org/information-for-authors

Why is it important to develop a Protocol?

by EDF and KIT

What does the CEE say?

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- Develop an *a priori* protocol before starting the literature review so that **the process is clear and consistent**.
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- The protocol can help other review teams **replicate the work** *or* **update a literature review** when new research becomes available.

Guidelines and Standards for Evidence Synthesis in Environmental Management

Collaboration for Environmental Evidence

Section 4

Writing and registering a Protocol

https://environmentalevidence.org/information-for-authors/4-writing-and-registering-a-protocol/

Why is it important to develop a Protocol?

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OTHER PROTOCOLS EXIST
such as

PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses)
PRISMA statement

Cochrane

Key steps in a systematic review | Cochrane

Guidelines and Standards for Evidence Synthesis in Environmental Management

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www.environmentalevidence.org/information-for-authors

Where to publish?

PROCEED – « fast-track » the protocol

by EDF and KIT

A global registration system for titles and protocols of environmental evidence reviews and syntheses

Collaboration for Environmental Evidence

JKI Julius Kühn-Institut

What is PROCEED?

PROCEED is a global database of prospectively registered evidence reviews and syntheses in the environmental sector. It provides an open access resource of titles and protocols of environmental evidence reviews/syntheses. Authors can register and upload their titles and protocols using appropriate templates. The database is open-access and free to all.

Go to PROCEED

https://www.proceedevidence.info/

PROCEED

by EDF and KIT

Collaboration for Environmental Evidence

PROCEED
WWW.PROCEEDEVIDENCE.INFO

Systematic review

Systematic Review Protocol

Title
What is the influence on socio-economic well-being of UNESCO biosphere reserves in Southeast Asia? A systematic review protocol

Citation:
Phuong Thao Nguyen, Duong Minh Lam, Jacqualyn Eales. What is the influence on socio-econom well-being of UNESCO biosphere reserves in Southeast Asia? A systematic review protocol: a Systematic Review Protocol. PROCEED-22-00029 Available from:
https://www.proceedevidence.info/protocol/view-result?id=29
https://doi.org/10.57808/proceed.2022.5

Corresponding author's email address
j.f.eales@exeter.ac.uk

Keywords
UNESCO biosphere reserves, conservation, Southeast Asia, human well-being, socio-economics

Background
This PROCEED submission follows the open access a-priori availability of the protocol at Zenodo prior to commencing this review, on 27th October 2020. DOI: 10.5281/zenodo.4136658 The conc of Biosphere Reserves was introduced in 1975 (Jaisankar, Velmurugan, & Sivaperuman, 2018) b UNESCO in response to the need for conservation of biodiversity along with its sustainable use. Biosphere reserves comprise terrestrial, marine and coastal ecosystems for the purpose of preserving genetic diversity in representative ecosystems by protecting wild animals, the traditi

Systematic map

Collaboration for Environmental Evidence

PROCEED
WWW.PROCEEDEVIDENCE.INFO

Systematic Map Protocol

Title
What evidence exists on the potential of Technosols constructed from mineral wastes to host biodiversity?

Citation:
Dakis-Yaoba Ouédraogo, Romain Sordello, Yorick Reyjol, Thomas Lerch. What evidence exists on the potential of Technosols constructed from mineral wastes to host biodiversity?: a Systematic Map Protocol. PROCEED-22-00018 Available from:
https://www.proceedevidence.info/protocol/view-result?id=18
https://doi.org/10.57808/proceed.2022.3

Corresponding author's email address
dakis-yaoba.ouedraogo@mnhn.fr

Keywords
Anthroposol; Anthrosol; Circular economy; Constructed Technosol; Ecological engineering; Excavated materials; Urban construction wastes

Background
In 2018, an estimated 55.3 per cent of the world's population lived in urban settlements. By 2030, urban areas are projected to house 60 % of people globally and one in every three people will live in cities with at least half a million inhabitants [1]. The development of cities and transport infrastructures will produce a large volume of excavated materials. For instance, in France, the construction of the Grand Paris Express transport infrastructure will generate 45 million tonnes of these materials. The management of excavated materials, considered as wastes, has a substantial economic and environmental cost (e.g. greenhouse gas emissions), as they are most often stored in

Help with planning

- Campbell Systematic Reviews: Policies and Guidelines (Campbell Collaboration, 2014). https://onlinelibrary.wiley.com/pb-assets/assets/18911803/Campbell%20Policies%20and%20Guidelines%20v4-1559660867160.pdf
- Higgins, J. P. et al. Cochrane Handbook for Systematic Reviews of Interventions (John Wiley & Sons, 2019). https://training.cochrane.org/handbook

- Shea, B. J. et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. BMJ 358, j4008 (2017). https://www.bmj.com/content/358/bmj.j4008

- Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) https://www.prisma-statement.org/

- RepOrting standards for Systematic Evidence Syntheses (ROSES) https://www.roses-reporting.com/

Guidelines and Standards for Evidence Synthesis in Environmental Management

Collaboration for Environmental Evidence

Section 3

Planning a CEE Evidence Synthesis

https://environmentalevidence.org/information-for-authors/3-planning-a-cee-evidence-synthesis/

The protocol of a systematic review

How to develop a review Protocol?

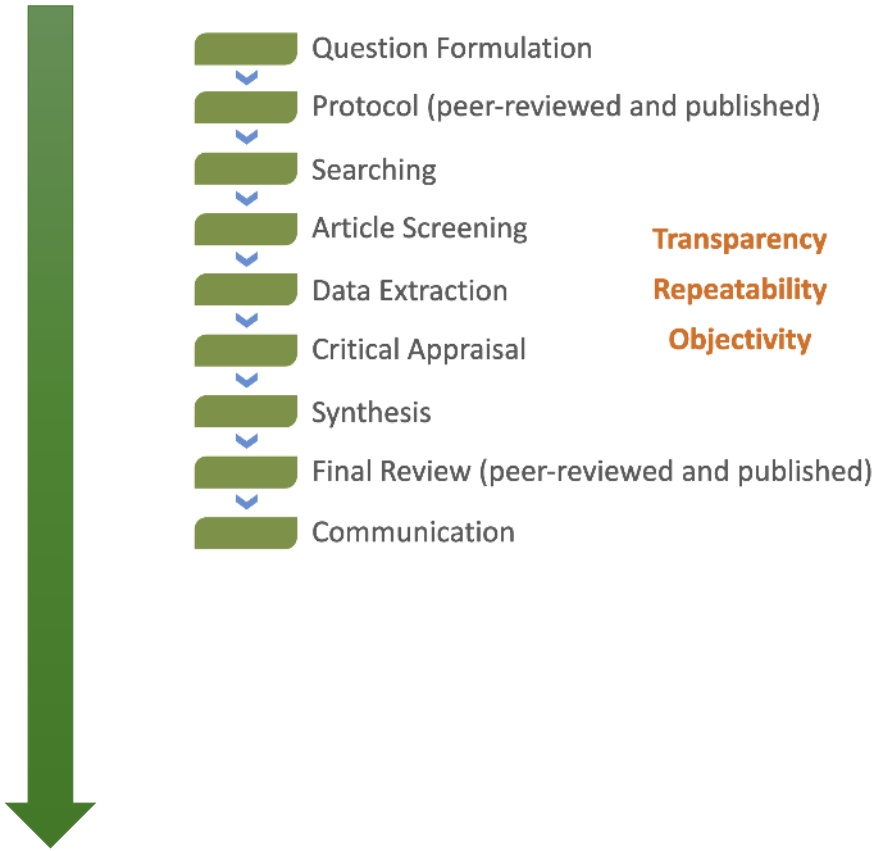
eifer
by EDF and KIT

1. Background/Purpose

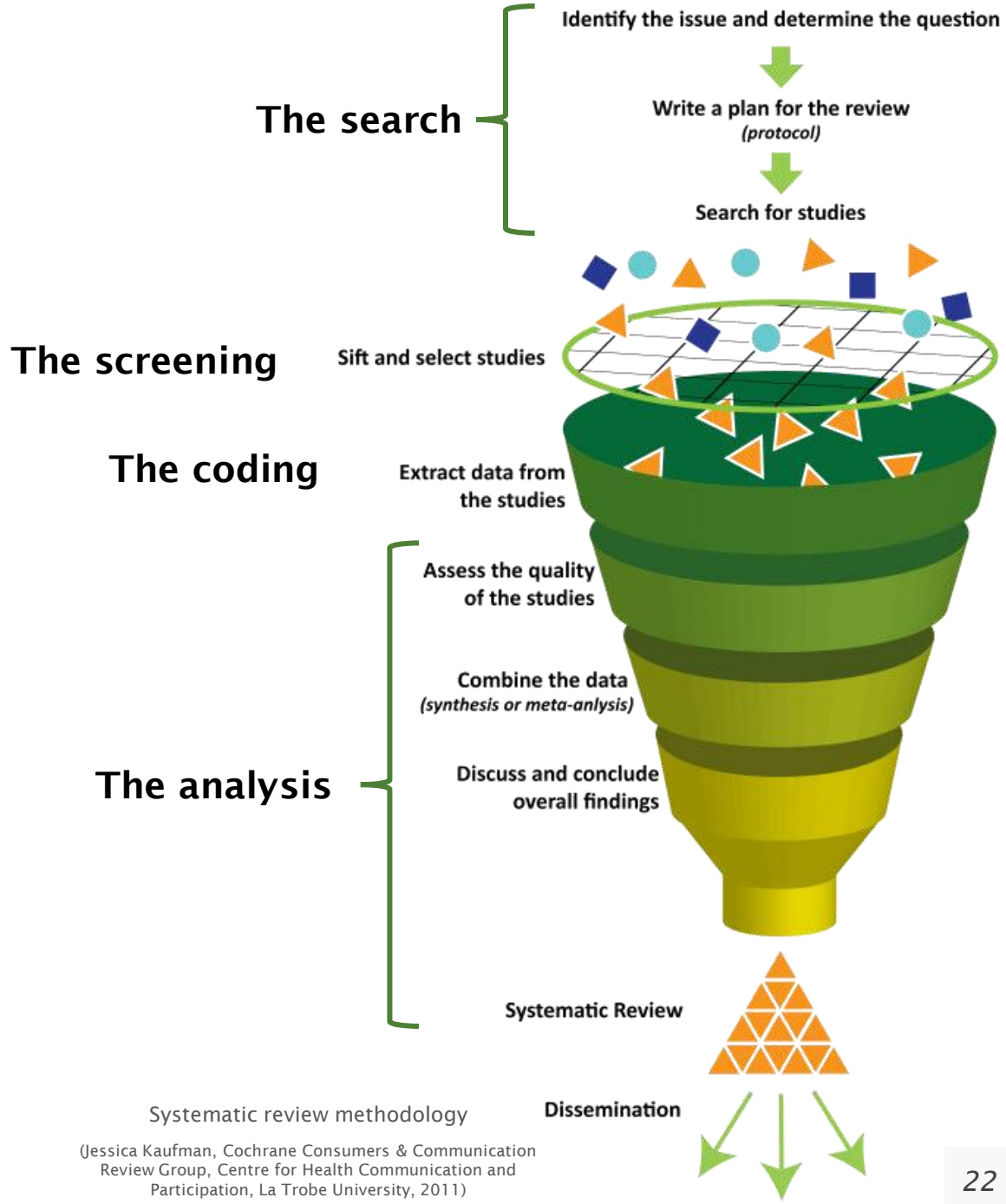
2. Objectives/Review Question

3. Methods
   a. Selection Criteria
   b. Search Strategy
   c. Data Collection
   d. Displaying Data
   e. Analysis and Synthesis

etc.



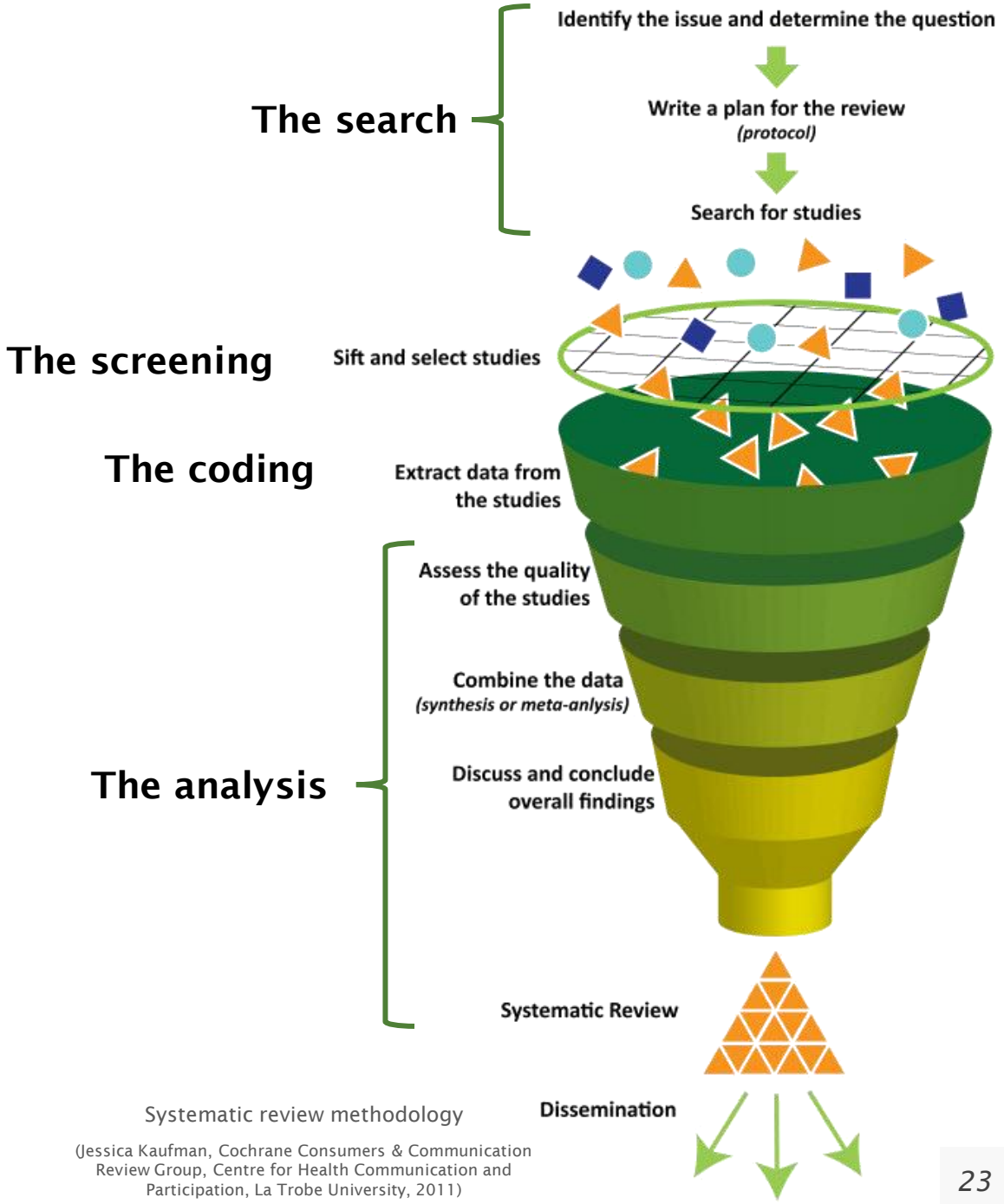
The methodology



Systematic review methodology

(Jessica Kaufman, Cochrane Consumers & Communication Review Group, Centre for Health Communication and Participation, La Trobe University, 2011)

The methodology



Systematic review methodology

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The protocol

A protocol aims at objectifying the results/conclusions

- Replicability : need to repeat a review's methods exactly
- Transparency archiving
- Consideration of biases (internal, external) reliability

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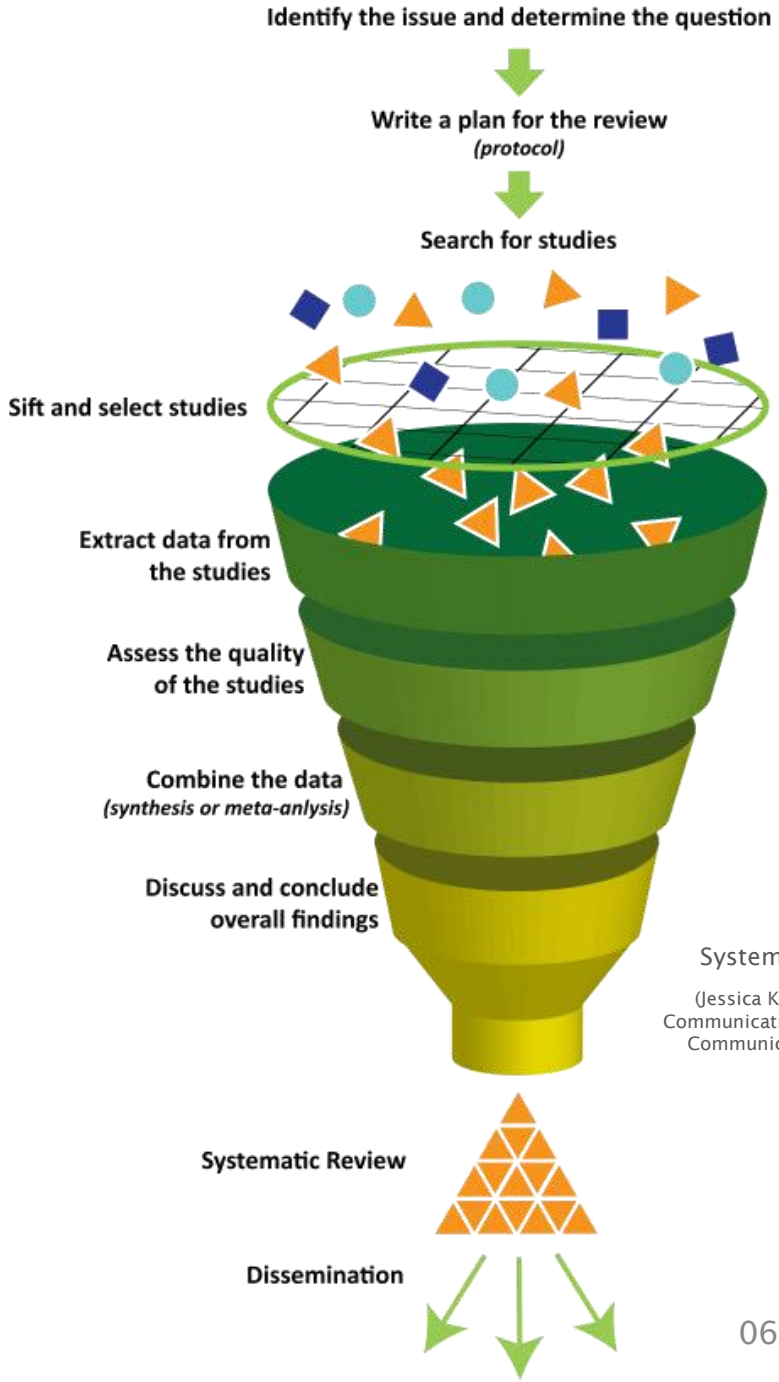
Despite the increasing popularity of systematic reviews in the environmental field, evidence synthesis methods continue to be poorly applied in practice (Haddaway *et al.* 2020).



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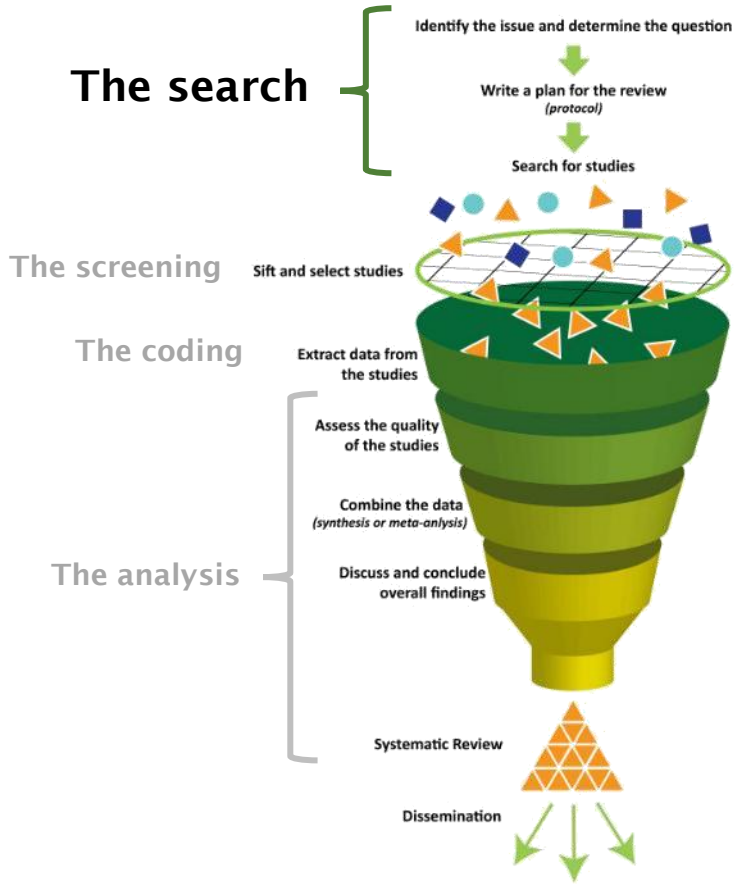
The search phase

The search phase

Search the references related to our subject or question

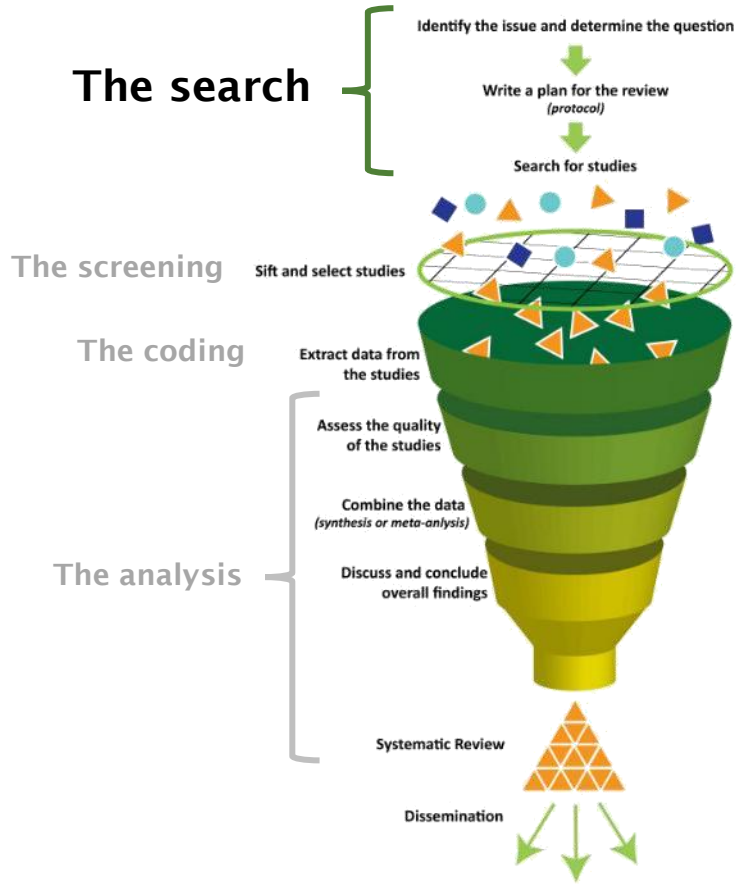


Systematic review methodology

(Jessica Kaufman, Cochrane Consumers & Communication Review Group, Centre for Health Communication and Participation, La Trobe University, 2011)

The search phase : 4 steps

- Define the question
- Define the search terms
- Define the search string
- Choose the search platform



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The search phase : 4 steps

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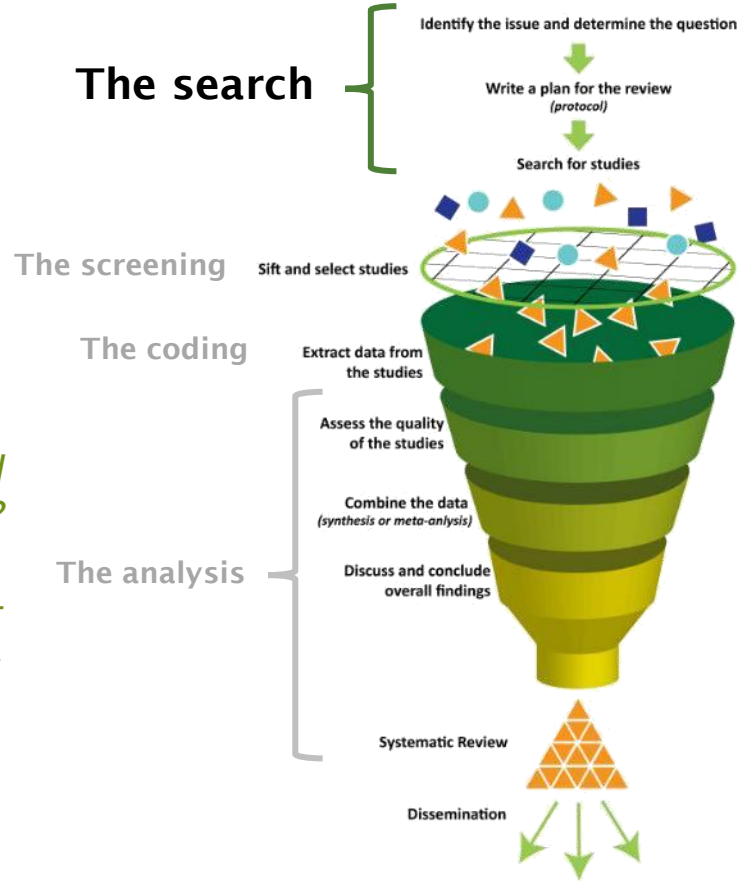
What are the ecosystem services provided by wetlands ecosystems?

The keywords chosen are: service + ecosystem + environmental + wetland + peatland + marsh etc.



Systematic review methodology

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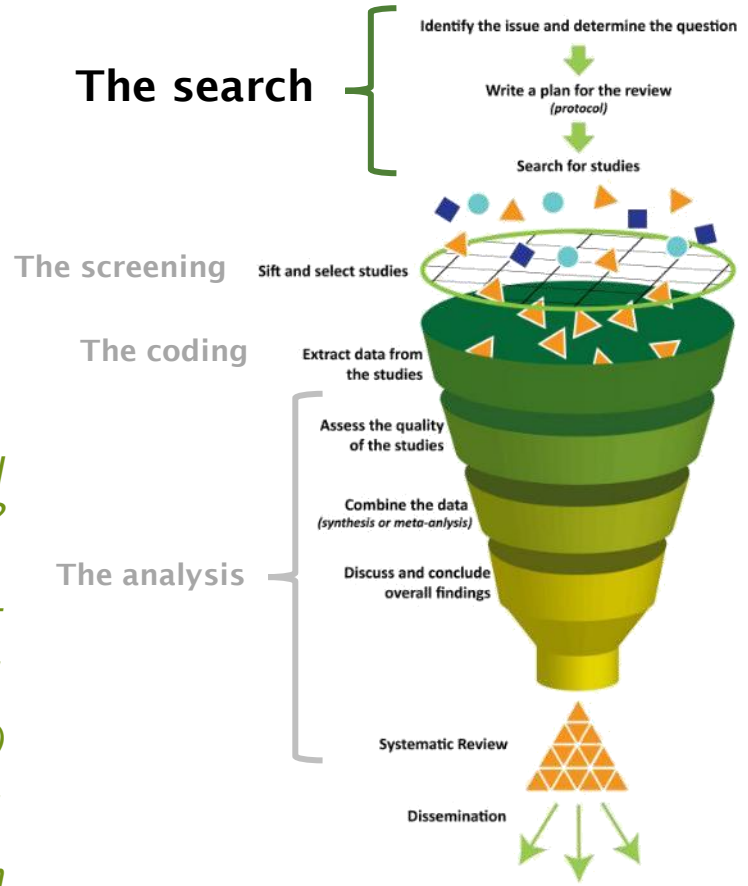
The search phase : 4 steps

- Define the question → *What are the ecosystem services provided by wetlands ecosystems?*
- Define the search terms → *The keywords chosen are: service + ecosystem + environmental + wetland + peatland + marsh etc.*
- Define the search string → *TS = ((ecosystem* OR environment*) AND service*)) AND TI = ("wetland" AND " peatland" AND "marsh" …).*
- Choose the search platform → *Web of Science (WoS) Core Collection Google Scholar*



Systematic review methodology

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	SCOPUS	Web of Science
Search operators (AND, OR, *, $)	https://blog.scopus.com/posts/boolean-searches-in-scopus-understanding-operator-precedence-best-practices	https://webofscience.help.clarivate.com/en-us/Content/search-operators.html
Where do we search?	TS=Topic TI=Title AB=Abstract	ALL AUTHOR-NAME TITLE-ABS-KEY

The search phase : many steps

Search the references related to our subject or question

1. PLANNING THE SEARCH

1.1 Establishing a test-list

1.2 Identifying search terms

1.3 Identifying relevant sources of articles

1.4 Choosing bibliographic management software

1.5 Adressing the need for grey literature

1.6 Deciding when to stop

1.7 Submitting the search strategy in the protocol for peer-review

2. CONDUCTING THE SEARCH

2.1 Prioritizing bibliographic sources

2.2 Building the search string

2.3 Assessing retrieval performance

2.4 Refining the results

2.5 Searching for grey literature

2.6 Additional approaches

3. MANAGING REFERENCES AND REPORTING

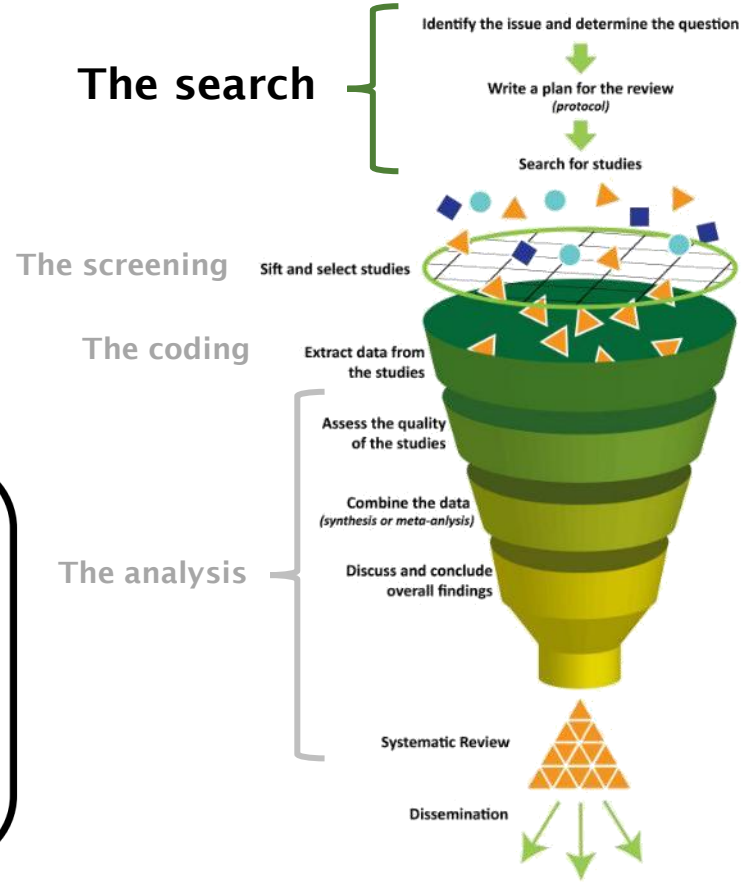
3.1 Keeping track of the search and recording results

3.2 Writing the search report

4. UPDATING AND AMENDING A SEARCH

A guide to the planning, conduct, management and reporting of the searching phase of systematic reviews and systematic maps

Livoreil, B., Glanville, J., Haddaway, N.R. et al. (2017). Systematic searching for environmental evidence using multiple tools and sources. Environ Evid 6, 23 https://doi.org/10.1186/s13750-017-0099-6)



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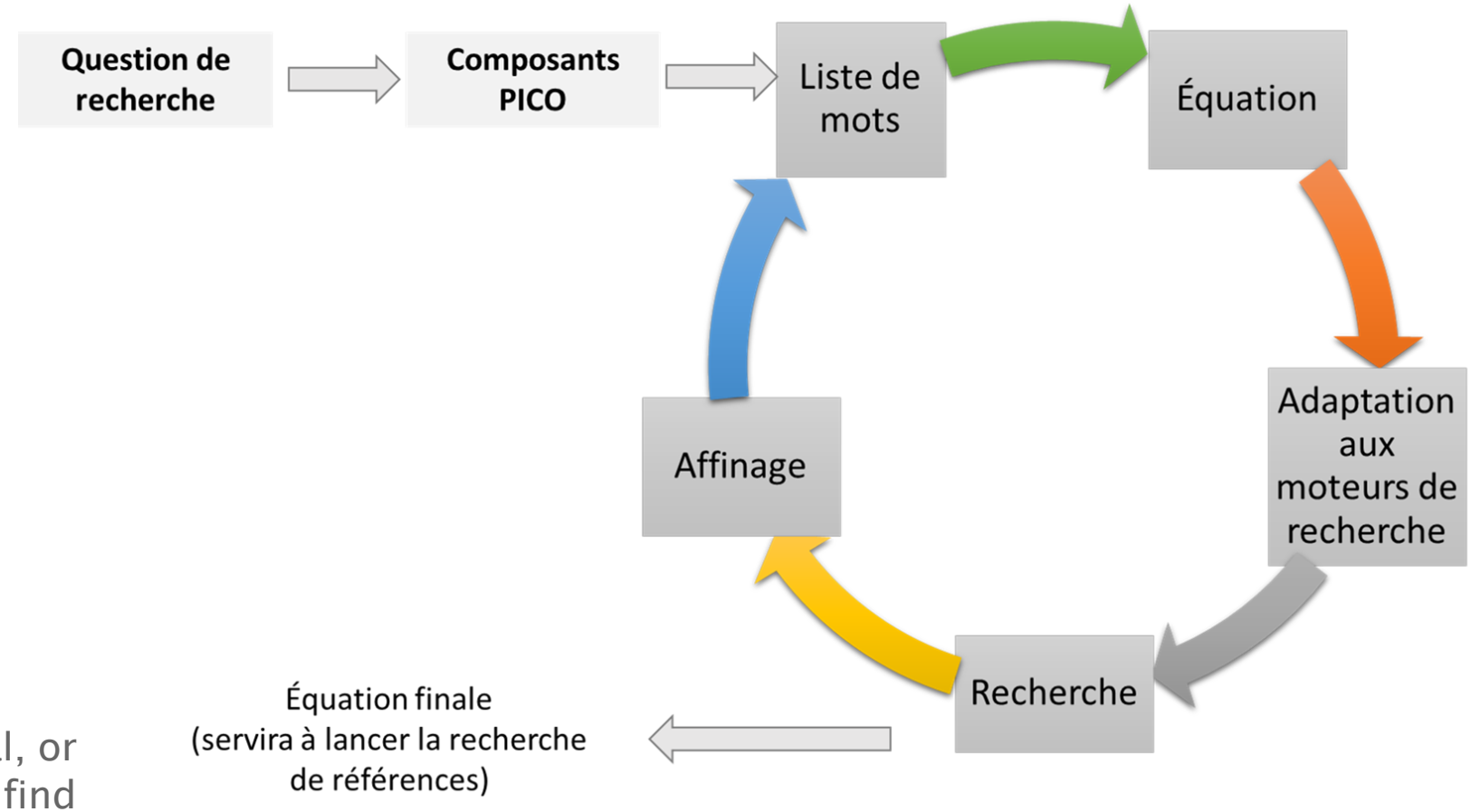
The search strategy

- Define the question
- Define the search terms
- Define the search string



search terms encompasses individual, or compound words used in a search to find relevant articles

search string is a combination of search terms combined using Boolean operators

The search string

PICO/PECO elements (Richardson et al. 1995)

Population : effect *on what?*

Intervention / Exposure : *effect of what ?*

Comparator : *compared to what? to what reference?*

Outcome : effect *measured by what?*

(Context : *what type of study?*)

Question element	Definition
Population (of subjects)	Unit of study (e.g. ecosystem, species) that should be defined in terms of the statistical populations of subject(s) to which the intervention will be applied.
Intervention/exposure	Proposed management regime, policy, action or the environmental variable to which the subject populations are exposed.
Comparator	Either a control with no intervention/exposure or an alternative intervention or a counterfactual scenario.
Outcome	All relevant outcomes from the proposed intervention or environmental exposure that can be reliably measured

The search string

1 **Define the PICO based on the research question**

PICO/PECO elements (Richardson et al. 1995)

Population : effect *on what?*

Intervention / Exposure : *effect of what ?*

Comparator : *compared to what? to what reference?*

Outcome : effect *measured by what?*

(Context : *what type of study?*)

My PICO

Example with the Agri-TE project:
What is the effect of agricultural practices on biodiversity at the global level?

The search string

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PICO/PECO elements (Richardson et al. 1995)

Population : effect *on what?*

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Outcome : effect *measured by what?*

(Context : *what type of study?*)

My PICO

Any unplanned/uncultivated taxon

Any agricultural practice

Agricultural witness or natural environment of ref.

Effect-size representing a biodiv metric.

Meta-analyses only

Example with the Agri-TE project:
What is the effect of agricultural practices on biodiversity at the global level?

The search string

2 **Establish the list of words that will be used to construct the search equation**

My search terms

biodiversity, soil fauna, birds, butterflies

tillage, fertilization, pesticides

croplands, forest

species richness, biomass, Shannon's entertainment

meta-analyses

My PICO

Any unplanned/uncultivated taxon

Any agricultural practice

Agricultural witness or natural environment of ref.

Effect-size representing a biodiv metric.

Meta-analyses only

Example with the Agri-TE project:
What is the effect of agricultural practices on biodiversity at the global level?

The search string

3 **Building the search string by adapting to search engines (eg: WoS)**

My search terms

biodiversity, soil fauna, birds, butterflies

tillage, fertilization, pesticides

croplands, forest

species richness, biomass, Shannon’s diversity

meta-analyses

My search string

TS= ((biodiversity OR soil fauna OR birds OR butterflies)

AND (tillage OR fertilizers **OR** pesticides **)**

AND (croplands OR forest)

AND (species richness OR biomass OR Shannon's diversity)

AND (meta-analyses))

Example with the Agri-TE project:
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The search string

My search string

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AND (tillage OR fertilizers **OR** pesticides **)**

AND (croplands OR forest)

AND (species richness OR biomass OR Shannon's diversity)

AND (meta-analyses))

Topic (title, abstract, keywords, keywords plus)

Logical and Boolean Operators

Both depend on the bibliographic sources

Example with the Agri-TE project:
What is the effect of agricultural practices on biodiversity at the global level?

The search string

My search string

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AND (tillage OR fertilizers **OR** pesticides **)**

AND (croplands OR forest)

AND (species richness OR biomass OR Shannon's diversity)

AND (meta-analyses))

Exact Expression
"soil fauna"

Truncations
pesticide*, pesticide$

Exclusion
NOT (medical science OR economics)

Thematic
soil fauna OR (earthworms OR spiders OR collembola OR springtails)

Beware of database variations in the search equation!!!

- Some use a different language for searching
- For example, $ instead of *.
- Additional options (inside or nearby)
- Help files are useful!
- Check the options
- Seek specialist help if necessary
- SAVE EVERYTHING

The search string

4 **Test the search string**

My search string

TS= ((biodiversity OR soil fauna OR birds OR butterflies)

AND (tillage OR fertilizers **OR** pesticides **)**

AND (croplands OR forest)

AND (species richness OR biomass OR Shannon's diversity)

AND (meta-analyses))

200 results is not enough!
20,000 results is too much!
Refinement needed…

Example with the Agri-TE project:
What is the effect of agricultural practices on biodiversity at the global level?

The search string

5 **Refine the search string**

My search string

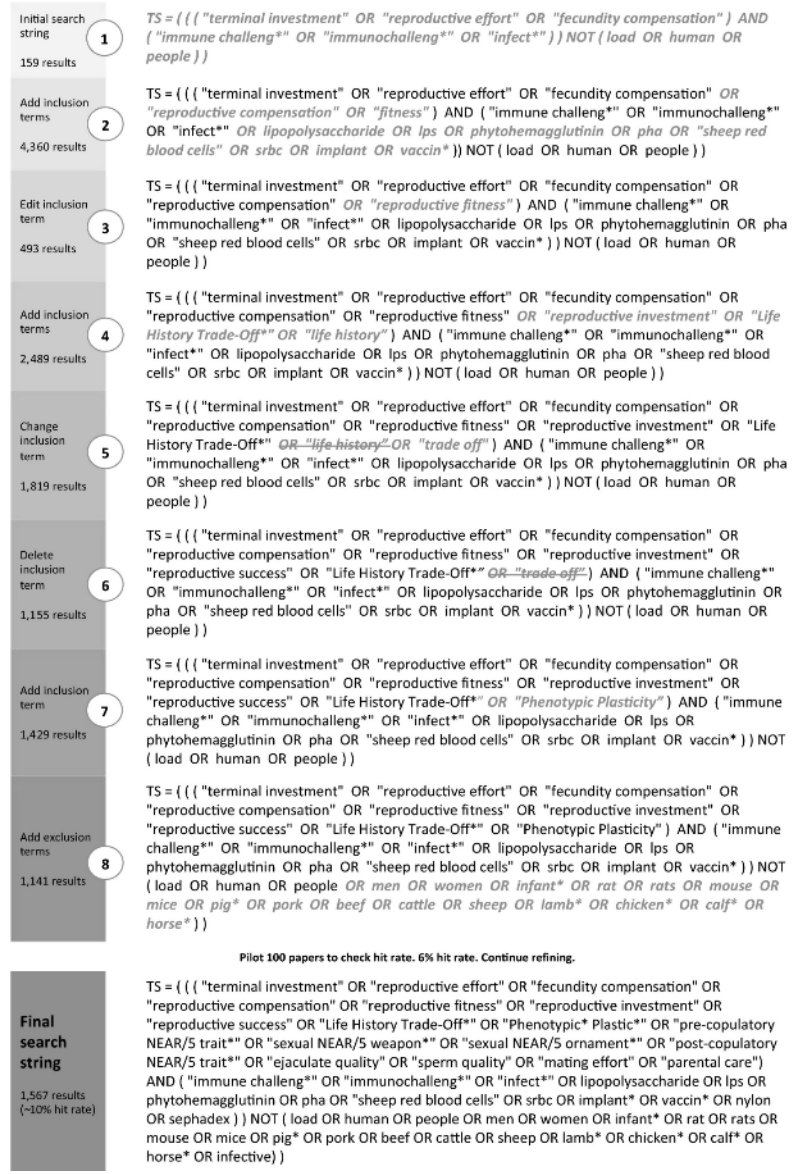
TS= ((biodiversity OR soil fauna OR birds OR butterflies)

AND (tillage OR fertilizers **OR** pesticides **)**

AND (croplands OR forest)

AND (species richness OR biomass OR Shannon's diversity)

AND (meta-analyses))



Iterative process that can (must?) be long

Ex: Foo et al. (2021)

The search string

5 **Refine the search string**

My search string

TS= ((biodiversity OR soil fauna OR birds OR butterflies)

AND (tillage OR fertilizers **OR** pesticides **)**

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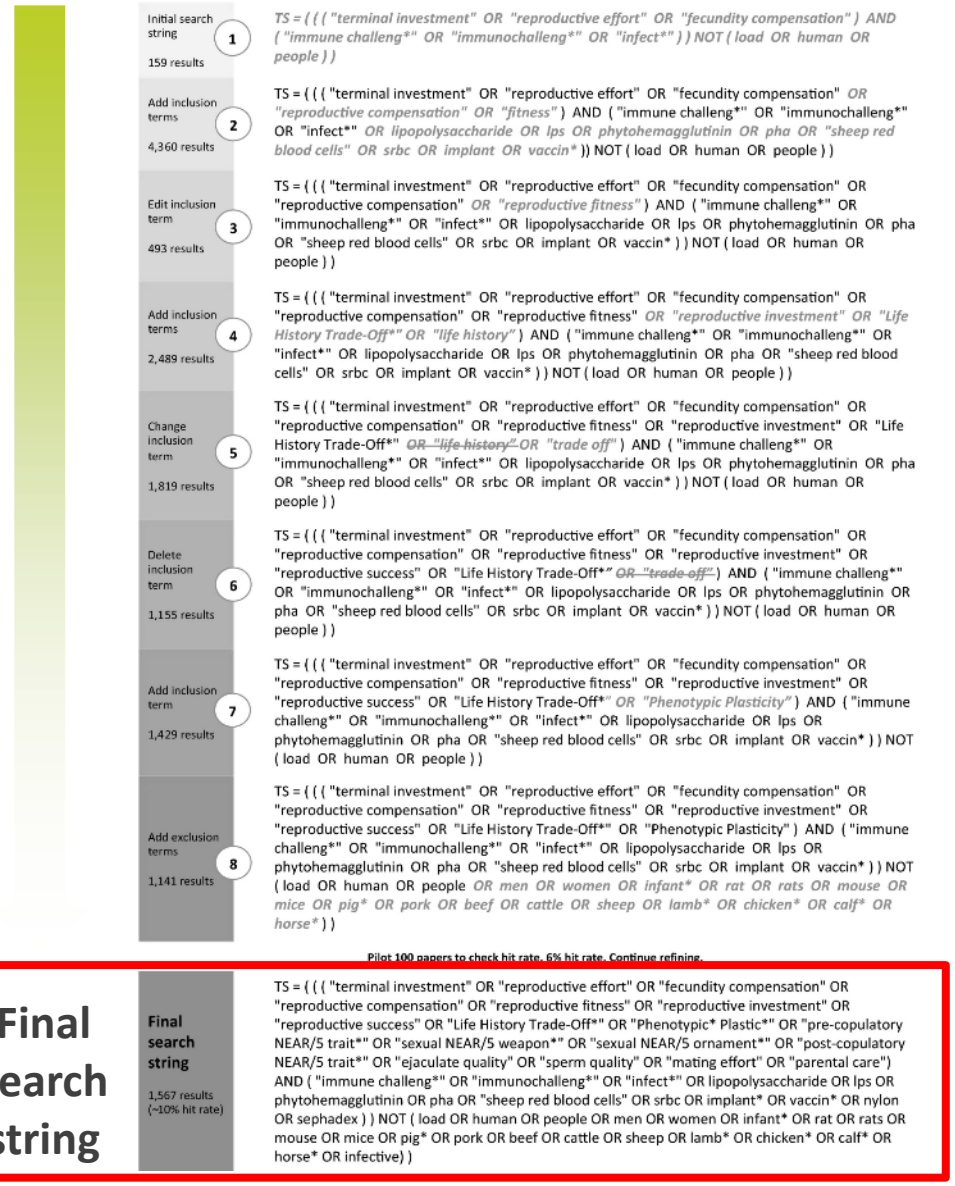
Iterative process that can (must?) be long

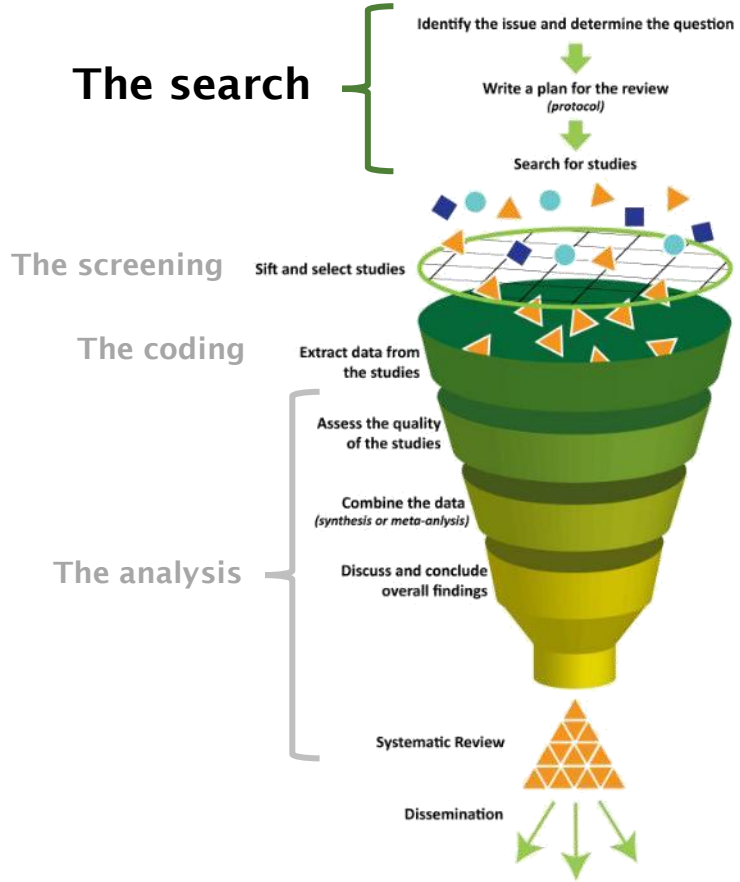
Ex: Foo et al. (2021)



Final search string

The search phase

- Choose the search platform



Systematic review methodology

(Jessica Kaufman, Cochrane Consumers & Communication Review Group, Centre for Health Communication and Participation, La Trobe University, 2011)

The bibliographic sources

Bibliographic sources capture any source of references, including electronic bibliographic databases, those sources which would not be classified as databases (e.g. the Internet via search engines), hand searched journals, and personal contacts.

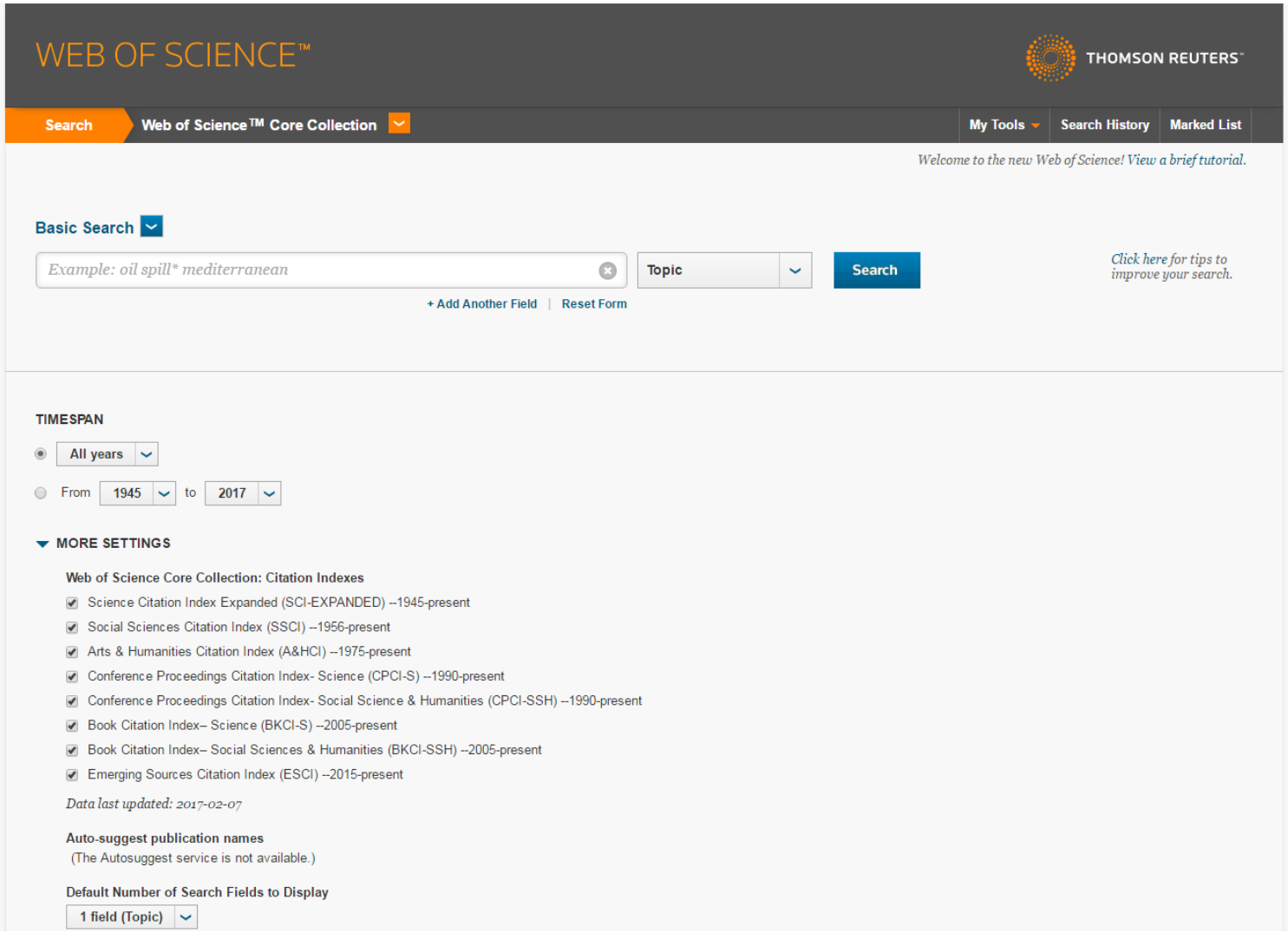
- Bibliographic
  - eg WoS, Scopus, Pubmed
- Web search tools
  - eg Google, Google Scholar
- Grey literature sources
  - Organizational websites
  - Thesis repositories

The bibliographic sources

Bibliographic databases

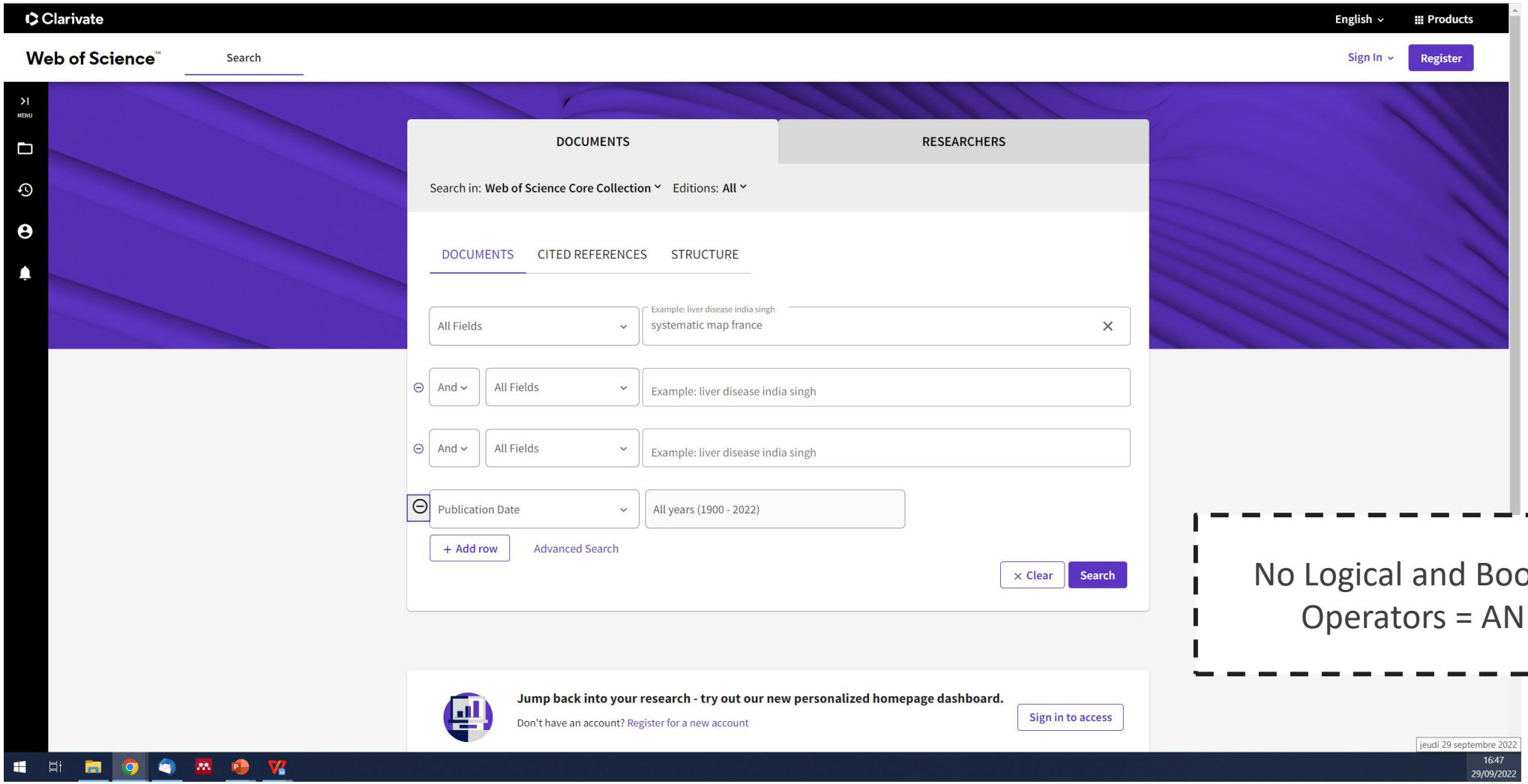
- Web of Science
- Scopus
- Agricola
- AGRIS (FAO)
- Academic Search Premier
- Biological Abstracts
- CAB Abstracts
- etc.

Example with web of science



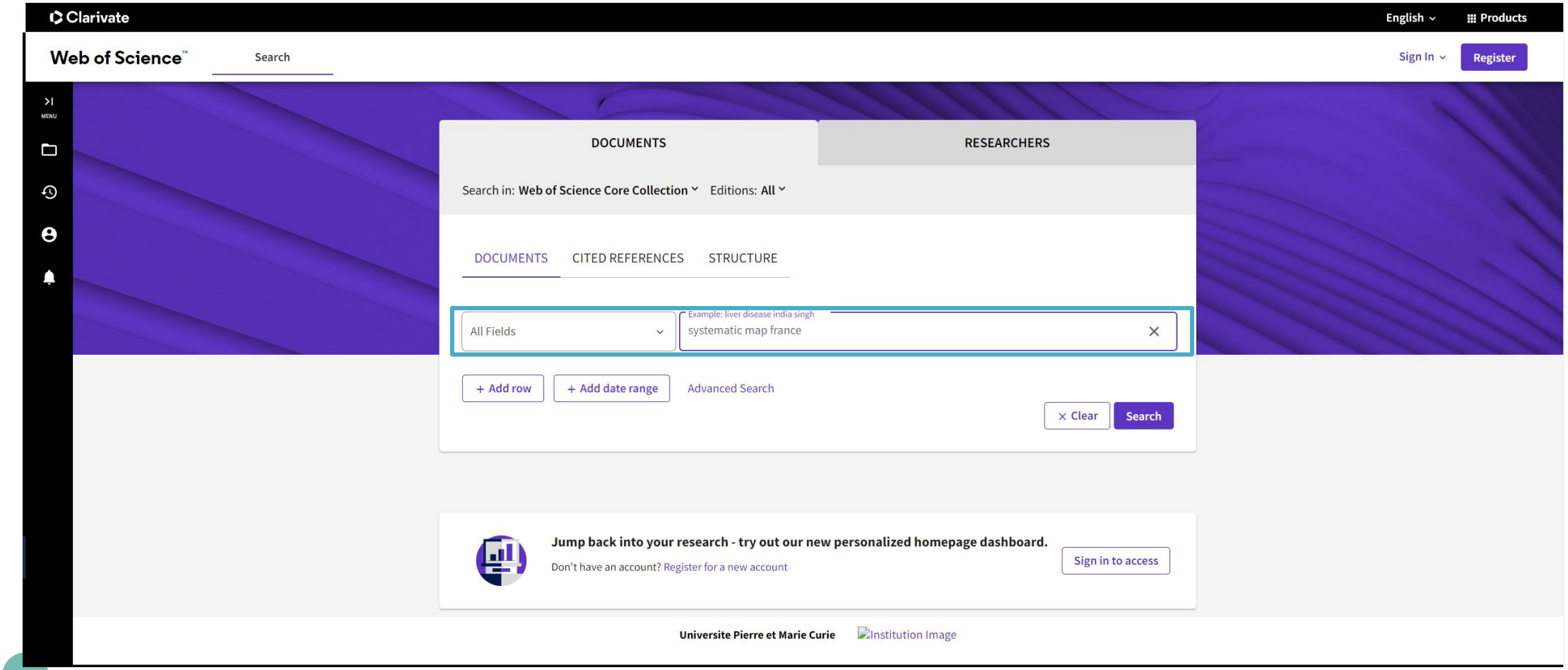
Example with web of science

https://www.webofscience.com/wos/woscc/basic-search

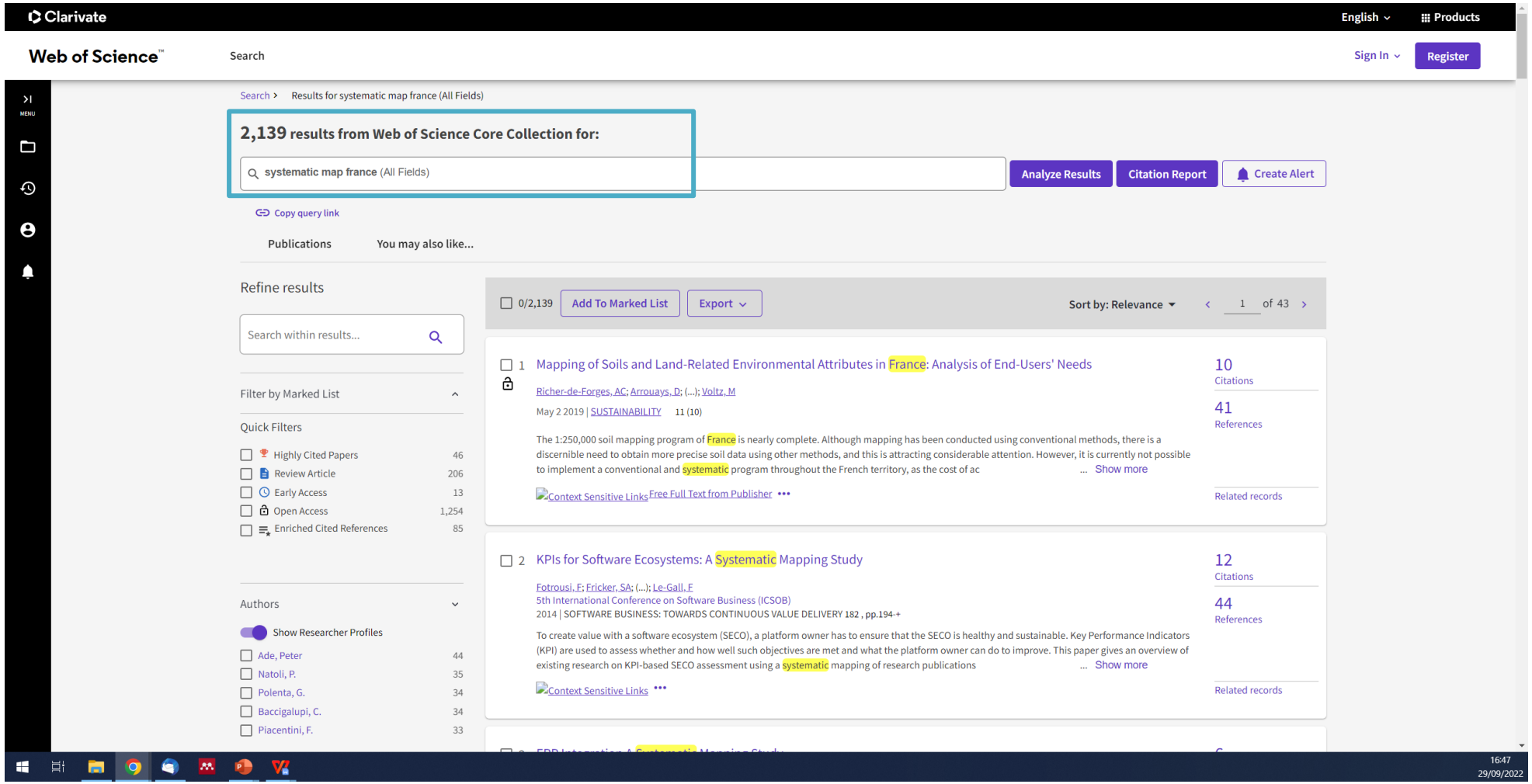


No Logical and Boolean Operators = AND

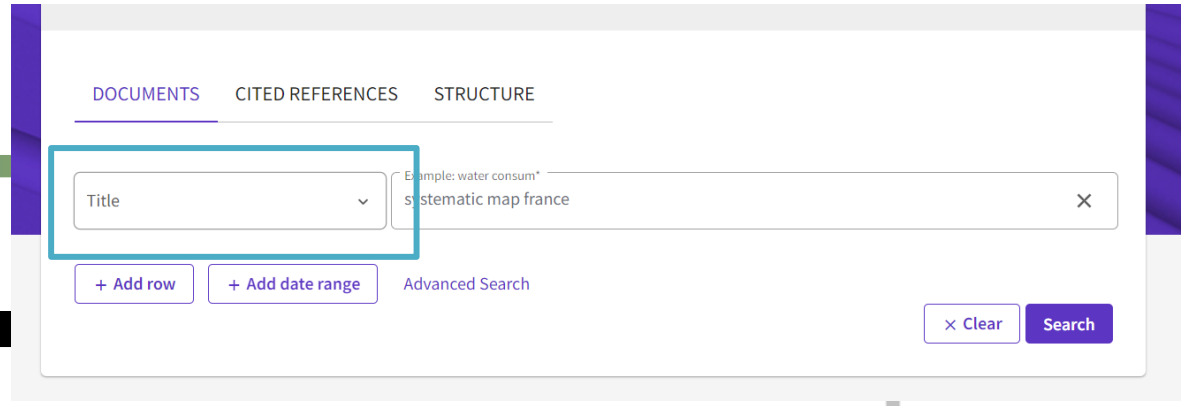
Example with web of science

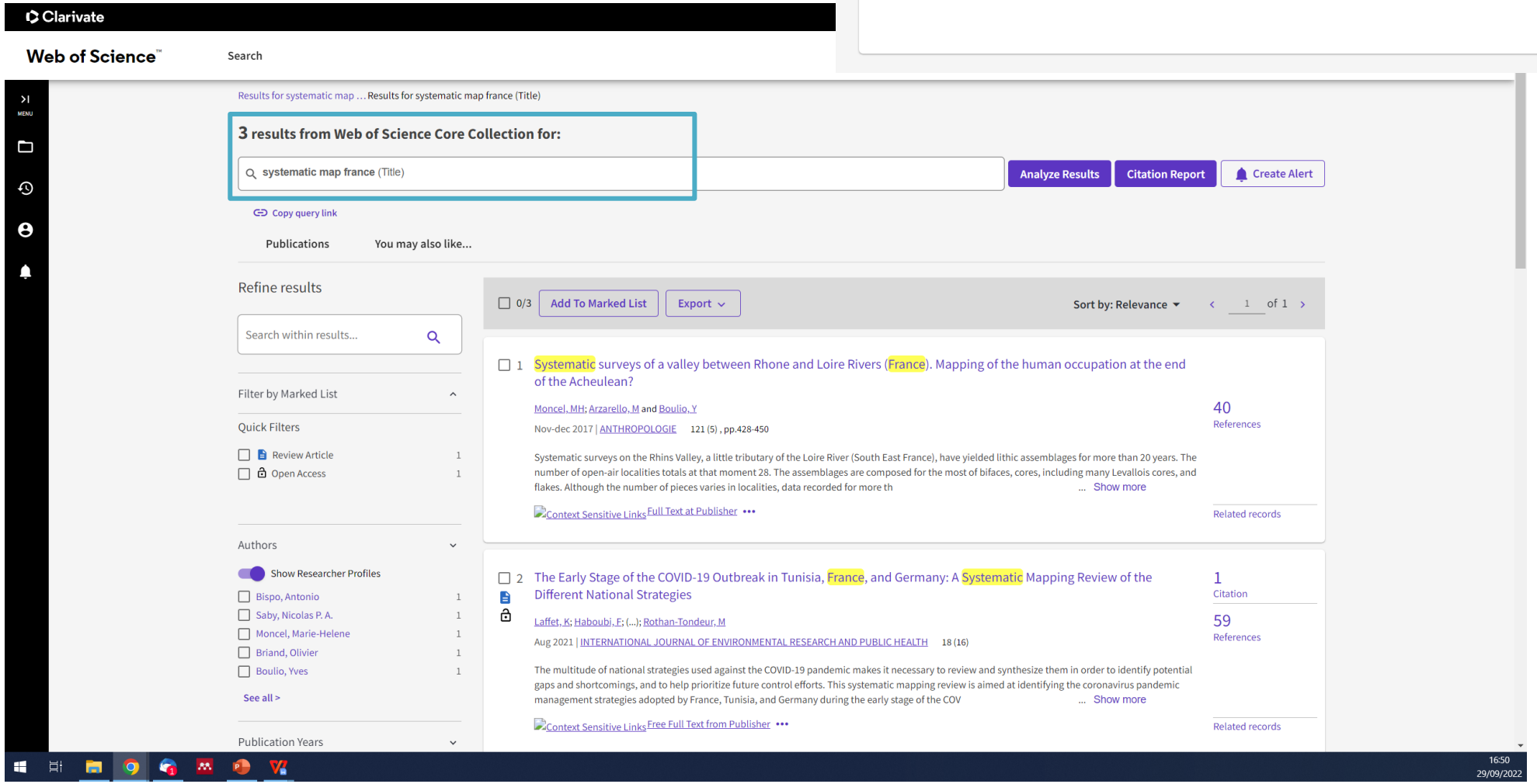


Example with web of science

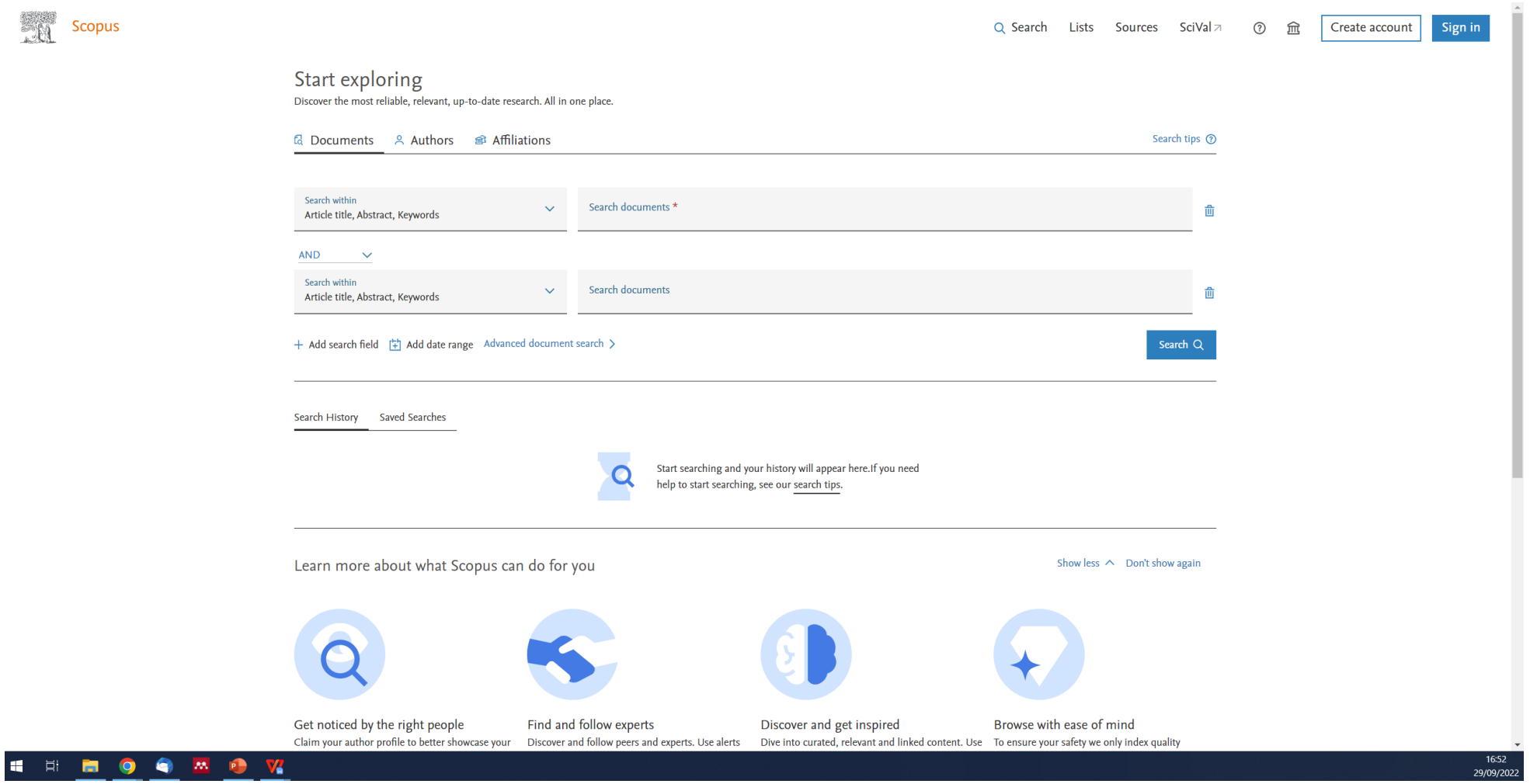


Example with web of science





Example with Scopus



The bibliographic sources

Web search tools

- Google
- Ecosia
- Bing
- DuckDuck Go

....

!!! Depend of connection parameters!!!!

The bibliographic sources

Grey literature sources

- 'File drawer' research / unpublished research results

– Unfinished/published/accepted articles

– The theses

– The “uninteresting” results

- Non-academic studies

– Technical reports

– Government documents

– Internal reports

all results not intended for academic publication

The bibliographic sources

Grey literature sources

- 'File drawer' research / unpublished research results

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– Government documents

– Internal reports

all results not intended for academic publication

How to find them?

– Calls for evidence (social media, networks)

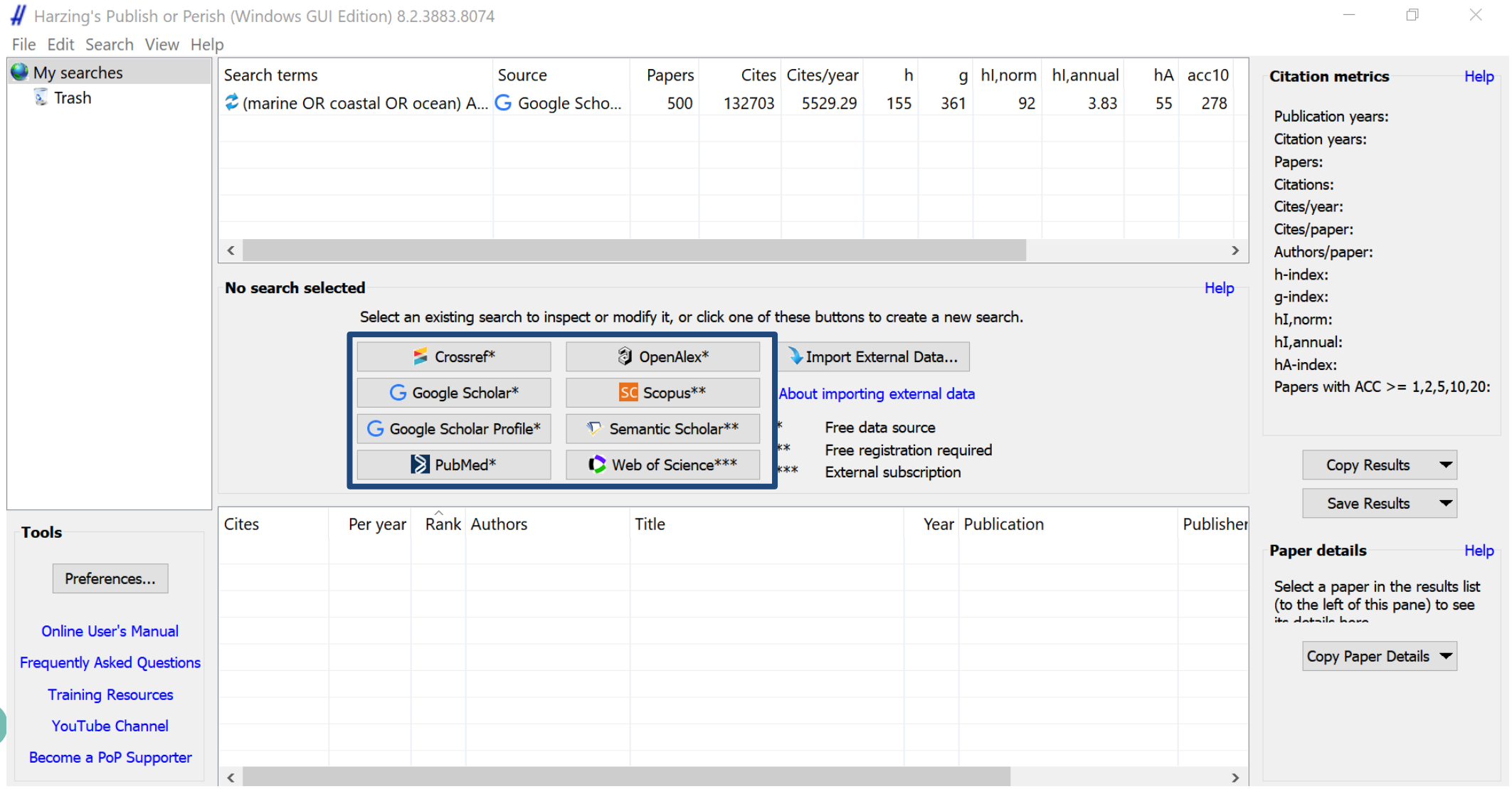
– Thesis databases (eg eThOS)

– Google Scholar, Google

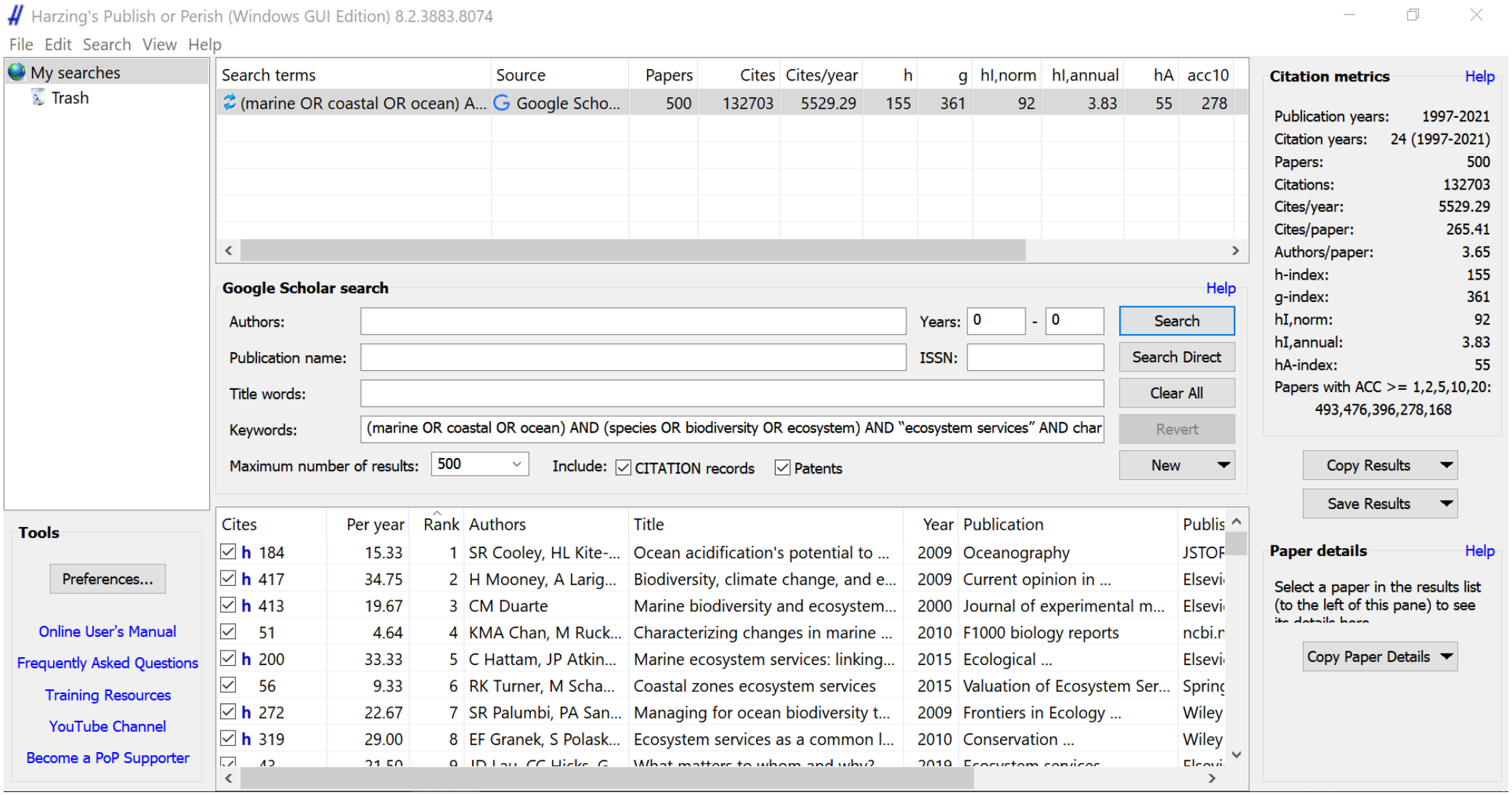
– Pre-print servers (eg ArchivX)

– Organizational websites

Example with Publish or Perish



Example with Publish or Perish



Example of search strings depending on the bibliographic sources

	Name	Search field	Search string	Search hits	Date of search (DD/MM/YYYY)
LITERATURE DATABASES	**Web of science**	TS	((marine OR coast* OR ocean OR sea OR littoral OR maritime) AND (species OR biodiversity OR ecosystem OR ecological) AND ("ecosystem service$" OR "contribution to people" OR "ecosystem function$" OR "ecosystem process" OR "landscape service$" OR disservice$ OR "provisioning service$" OR ((provision OR production OR exploitation) AND (food OR fisher* OR macroalgae$ OR molecules)) OR "biomass for nutrition" OR "biomass for materials" OR "genetic materials" OR "raw materials" OR "maintain* food webs" OR "life cycle maintenance and habitat protection" OR "habitat provision" OR "nursery function" OR "regulation service$" OR "climate regulation" OR "carbon sequestration" OR "weather regulation" OR "atmospheric composition and conditions" OR "air quality regulation" OR "coastal protection" OR "water retention" OR "nutrient regulation" OR "nutrient cycling" OR "pathogen regulation" OR "pest and disease control" OR "mediation of waste" OR "mediation of mass" OR "cultural service$" OR "intellectual interaction" OR "physical interaction" OR "experiential interaction$" OR tourism OR recreation OR amenity OR aesthetic OR heritage OR symbolic OR "cognitive effect$" OR "knowledge production" OR education) AND (dynamic$ OR impact$ OR effect$ OR variation$ OR interaction$ OR evolution OR change$)).	17329	20/07/2021
	Scopus	TITLE-ABS-KEY		24051	20/07/2021
ONLINE SEARCH ENGINE	**Google Scholar**	keywords	(marine OR coastal OR ocean) AND (species OR biodiversity OR ecosystem) AND “ecosystem services” AND change	300	22/07/2021
ORGANIZATIONAL WEBSITES	**FAO**	Language: "English"	fishery	50	27/08/2021
	UNESCO	Filter: language: "English" - source: "UNESCO" - AuthoCorporate-en-s: "Intergovernmental Oceanographic Commission" - nature of content: "guide" AND "manuals and handbooks"	marine ecosystem service	50	19/08/2021
	UNEP	Filters: "Reports and publications" AND "Publication" AND "Report", "Ecosystems and biodiversity" AND "oceans and seas"	marine ecosystem service	50	19/08/2021
	US NOAA		ecosystem service	15	19/08/2021
	EEA		marine ecosystem service	7	19/08/2021
	IUCN		ecosystem service	32	27/08/2021

Ex: Campagne et al. (2023)

The test list

<u>Test-list</u> : studies that you wish to include in your systematic review and which you know meet the inclusion criteria.

→ Discuss the list (involve partners/co-authors/colleagues) to construct it and then consolidate it

→ Extract metadata

→ Order of magnitude, ca. 30 items

<u>Interest</u> : verify the capacity of a research equation to capture studies corresponding to the aim of our systematic review.

→ Calculate the miss rate = the % of items belonging to the test list not captured by the equation

It must be minimized, ie the equation must approach 100% of the captured test-list… Refinement possible.

The test list

Example of test list

Campagne et al. (2023)

DOI	References			Retrieved by WOS	Retrieved by Scopus	Retrieved by google scholar
10.3389/fevc	Belgrano et a	Mapping and evaluating marine p	1	oui		
10.3389/fma	Cavanagh et	Future risk for Southern Ocean E	2	oui		
10.3354/mep	Cheung, W.W	Application of macroecological th	3	oui		
10.1093/icesj	Cheung, W.W	Integrating ecophysiology and pla	4	non	oui	
10.1016/j.glo	Cinner et al. (	Vulnerability of coastal communi	5	oui		
10.1016/j.ecc	Cook et al. (2	Towards marine ecosystem based	6	oui		
10.5670/ocea	Cooley et al.	Ocean acidification's potential to	7	oui		
10.1088/174	Cooley, S.R. a	Anticipating ocean acidification's	8	oui		
10.1111/gcb.	Fernandes, J.	Modelling the effects of climate c	9	oui		
10.1007/978-	Marcos et al.	Reviewing the ecosystem service	10	oui		
10.1002/lno.	Orcutt et al. (	Impacts of deep-sea mining on m	11	oui		
10.1890/070	Palumbi, S.R.	Managing for ocean biodiversity t	12	oui		
10.1007/s111	Roessig et al.	Effects of global climate change o	13	non	non	non
10.1016/j.jnc	Roncin, N., A	Uses of ecosystem services provi	14	oui		
10.1126/scie	Worm B., E.B	Impacts of biodiversity loss on oc	15	oui		
10.1016/j.oce	Kermagoret,	How does eutrophication impact	16	oui		
10.17159/saj	Arabi, S., Nah	Impacts of marine plastic on ecos	17	oui		
10.2307/234	Depellegrin, I	Integrating ecosystem service val	18	oui		
10.1016/j.ecc	Broszeit, S., B	What can indicators of good envi	19	oui		
10.1371/jour	Pendleton, L.	Estimating global "Blue Carbon" e	20	oui		
10.1042/ETL	Hall-Spencer,	Ocean acidification impacts on co	21	oui		
10.1016/j.ma	Potts, T., Bur	Do marine protected areas delive	22	oui		
10.1016/j.jen	Lemasson, A.	Linking the biological impacts of c	23	oui		
10.3389/fma	Pouso, S., Bo	An Interdisciplinary Approach for	24	oui		
10.1016/j.oce	Song, J., Zhar	Changes in ecosystem services va	25	oui		
10.1016/j.env	Yim, J., Kwon	Analysis of forty years long chang	26	oui		
http://www.	Hicks, C.C., M	Trade-offs in values assigned to e	27	oui		
10.1016/B97	Leenhardt, P.	The Role of Marine Protected Are	28	NOT in WoS	non	oui
10.1007/s101	Selim, S.A., B	Direct and indirect effects of clim	29	NOT in WoS	oui	
10.3391/ai.2(	Katsanevakis,	Impacts of invasive alien species (	30	NOT in WoS	oui	
				25 out of 30	28 out of 30	29 out of 30
				83,3%	93,3%	96,7%
				Only in WOS		
				25 out of 27		
				92,6%		

The search strategy

Complementary measures of the efficiency of the equation

- ***Miss-rate*** : thanks to the test-list, must be minimized

- ***Hit-rate*** : Percentage of relevant articles, calculated on a sample
  (for example, on 100 randomly selected results)
  → aim **for at least 10%**

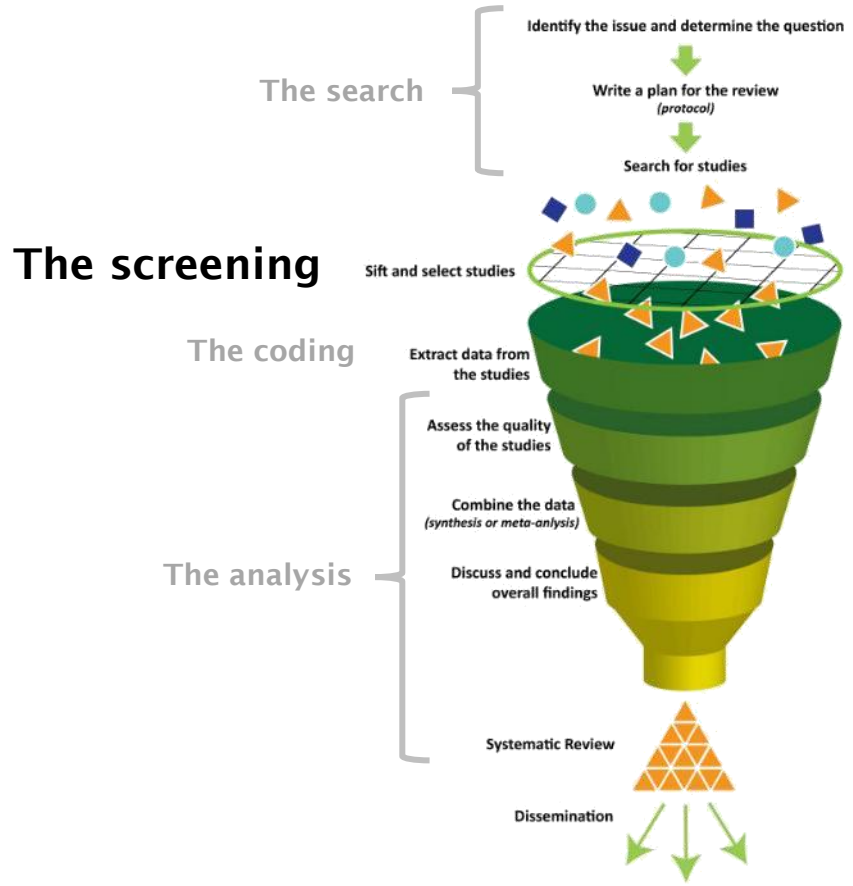
- ***Number of results*** : Aim for between 1000 and 3000.

  Adapt depending on the search engine used and/or the strategy employed.

The screening phase

The screening phase

Select the references related to our topic or question from the references found during the research phase.



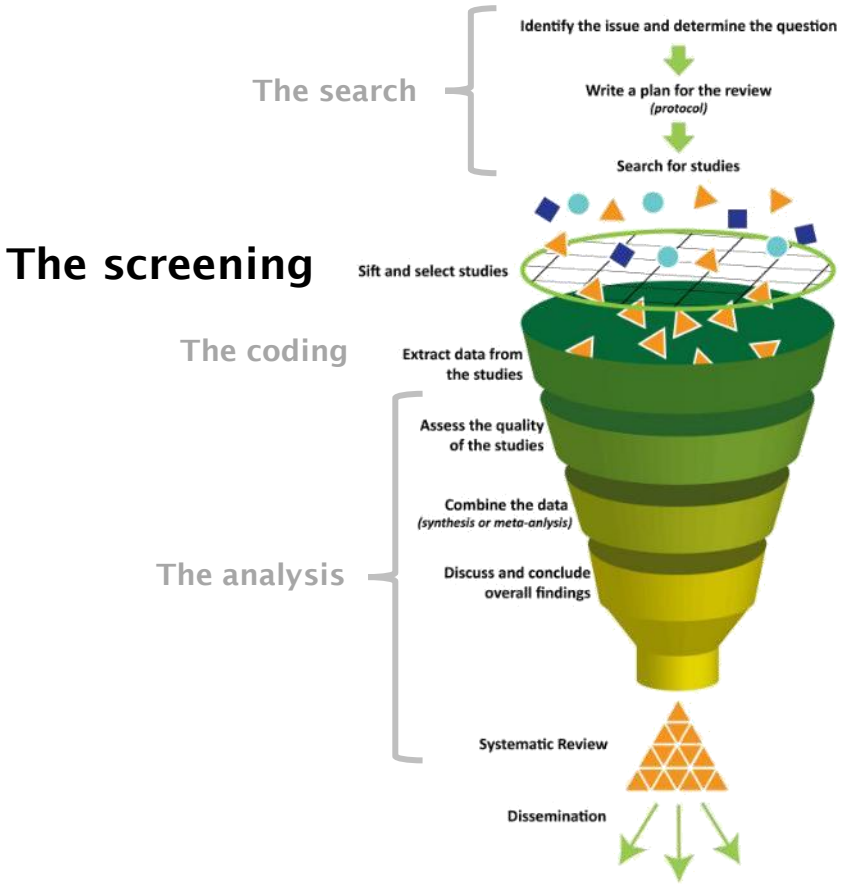
Systematic review methodology

(Jessica Kaufman, Cochrane Consumers & Communication Review Group, Centre for Health Communication and Participation, La Trobe University, 2011)

The screening phase

Select the references related to our topic or question from the references found during the research phase

1. The different screening stages
   - Check for duplicates
   - Title / Abstract screening
   - Full text searching
   - Full text screening
2. Inclusion and exclusion criteria
3. Existing tools for managing screening
4. Statistical tests between raters (kappa test)



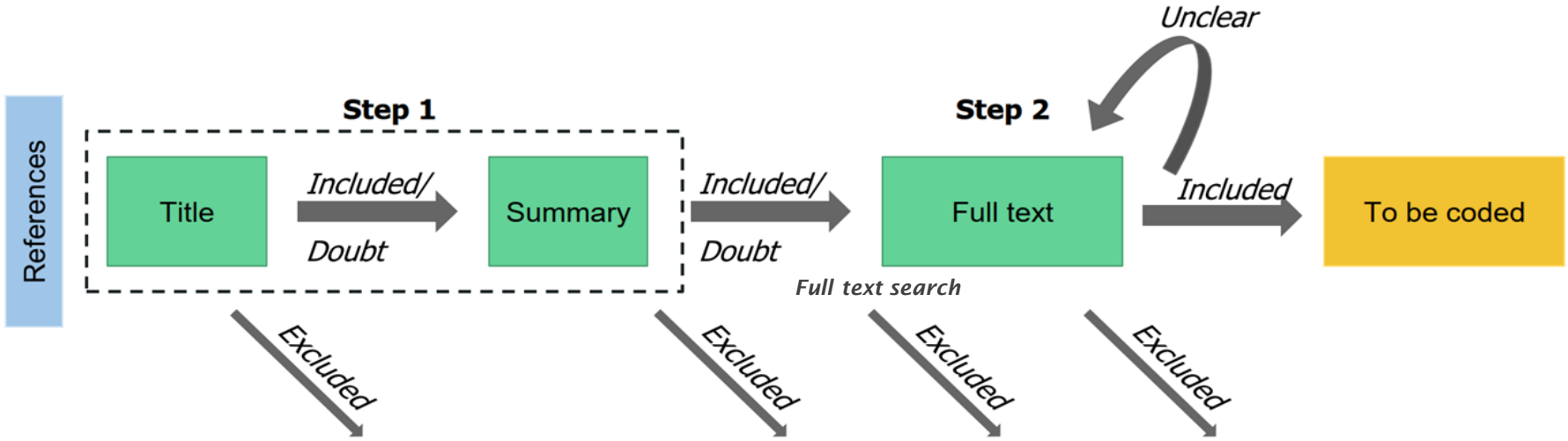
Systematic review methodology

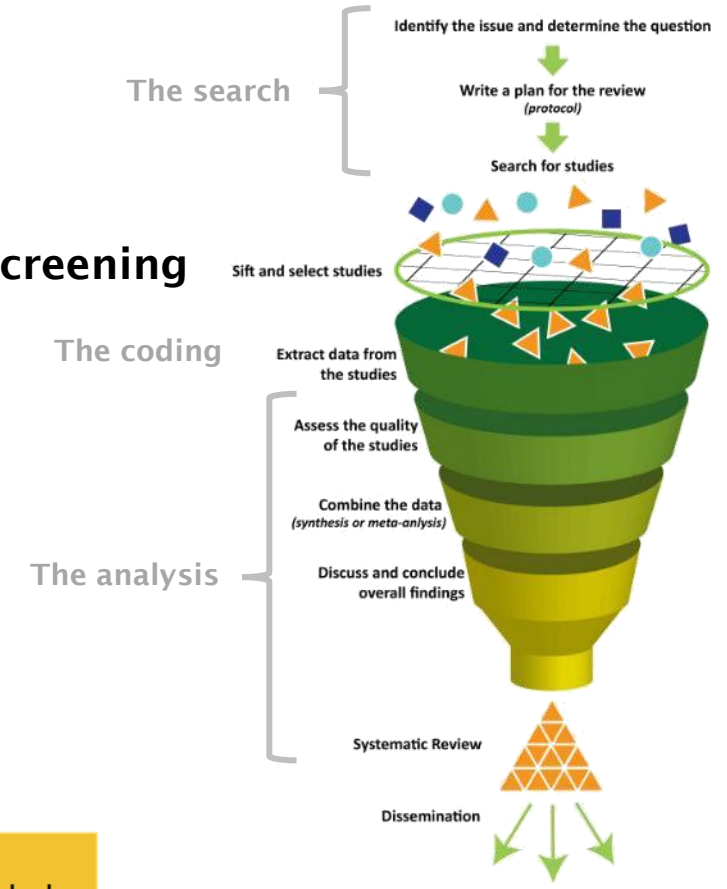
(Jessica Kaufman, Cochrane Consumers & Communication Review Group, Centre for Health Communication and Participation, La Trobe University, 2011)

The screening phase

Select the references related to our topic or question from the references found during the research phase

1. The different screening stages





Systematic review methodology

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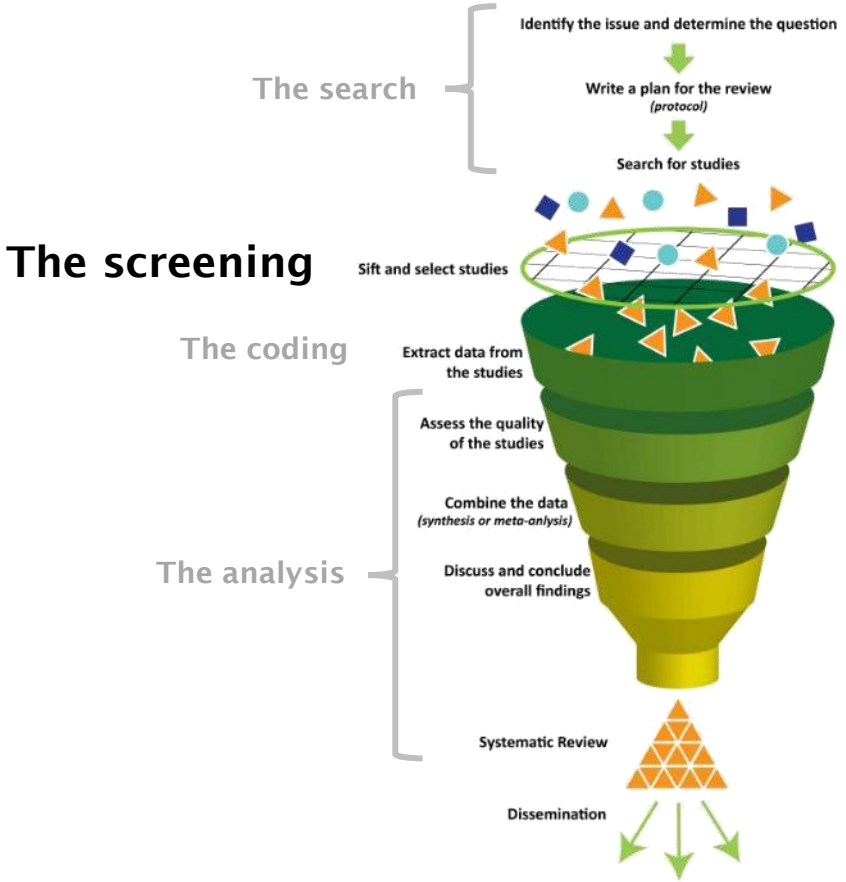
The screening phase

Select the references related to our topic or question from the references found during the research phase

- Title / Abstract screening
- Full text screening

Inclusion and exclusion criteria

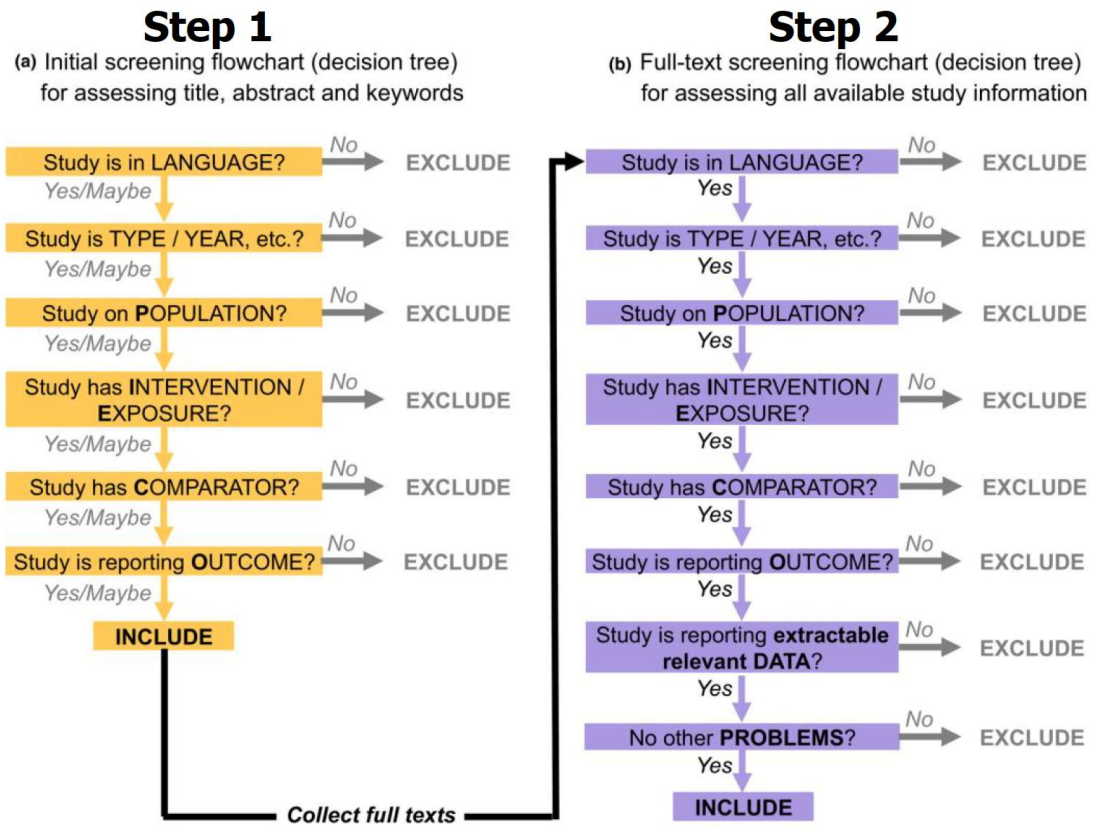


Systematic review methodology

(Jessica Kaufman, Cochrane Consumers & Communication Review Group, Centre for Health Communication and Participation, La Trobe University, 2011)

The screening phase

Inclusion and exclusion criteria



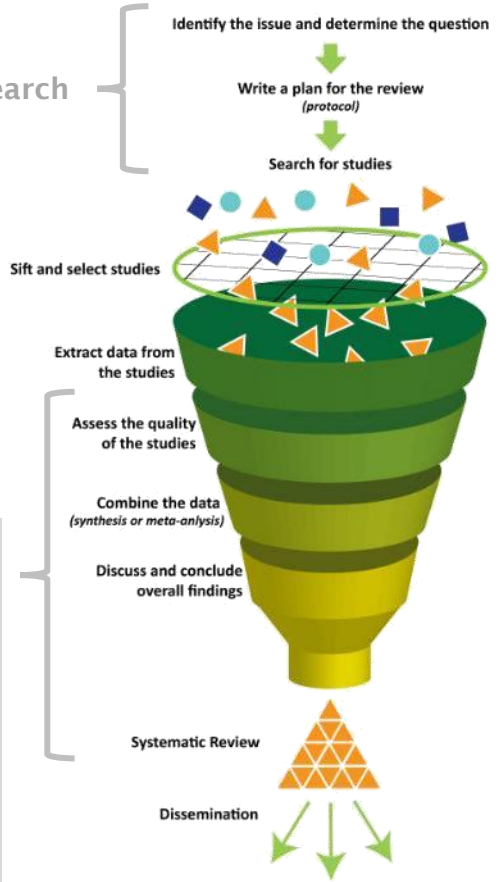
Decision trees in the screening phase

(Foo et al, 2021)

The search

The screening

The coding



Systematic review methodology

sica Kaufman, Cochrane Consumers & Communication Review Group, Centre for Health Communication and Participation, La Trobe University, 2011)

<u>Ideally, at each stage</u> :

→ generate the decision tree using **PICO** and **IN/OUT criteria**

→ **discuss** the decision tree (with at least 1 other evaluator)

→ **benchmark** the decision tree (on a few articles, 2+ reviewers, compare results)

→ **refine** the decision tree

<u>SORTING</u>

The screening phase

by EDF and KIT

Inclusion and exclusion criteria

Decision trees (Campagne et al, 2023)

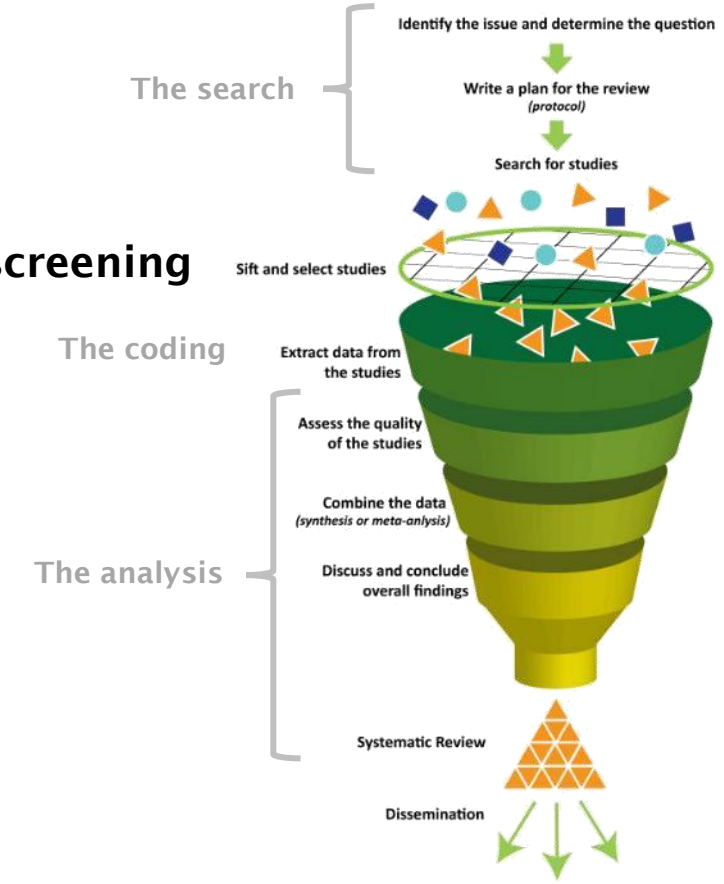
Criterion	Screening step	Inclusion criteria	Exclusion criteria
Population	**Title**	Articles whose title deals with biodiversity, i.e., species, habitats, and/or ecosystems in marine environments. Non-exhaustive examples may include open-ocean, continental shelf, coastal areas, seagrass meadows, estuaries, mangroves, coral reefs, etc.	Articles whose title explicitly only refers to terrestrial and/or freshwater biodiversity, species, habitats or ecosystems, i.e., articles regarding exclusively aquatic species and habitats (e.g., lakes, floodplains, rivers, subterranean habitats, etc.) or to terrestrial species and habitats (e.g., forest, agricultural ecosystems, etc.)
Outcomes	**Title**	Articles dealing with marine ecosystem services (as well as related terms such as "nature's contributions to people"). (e.g., marine blue sequestration, snorkelling, whale watching) Articles dealing with the marine ecosystem service of food supply in terms of indicators of stock or population size of commercial species (e.g., fishery stock)	Articles dealing solely with function or structure processes and not related to effects on ecosystem services (e.g., primary production, photosynthesis) Studies only addressing species criteria with indicators other than the stock or the population size of the species (e.g., species distribution)
Exposure	**Abstract**	Any article or study exposing marine biodiversity, i.e., species, habitats, and ecosystems, to a change in structure and/functioning over time caused by an agent of change, i.e., human activity (e.g., direct/overexploitation, land/sea use change, etc.) or a change caused by different spatial area studied	Articles presenting no exposure to a change
Comparator	**Abstract**	Articles studying changes in ecosystem services through time or space (i.e., temporal or spatial comparisons). This may mean a different study type as detailed in Table 4. Accepted with synchronic comparators (same time, different sites).	Articles only assessing ecosystem services at one time or in one site/area
Temporal period	**Abstract**	Articles analysing relevant outcomes with data covering periods of at least part of the 20th century and/or the 21st century	Articles analysing data covering periods ending before 1900 (e.g., palaeoecology analysis).
Outcomes	**Full text**	Articles analysing relevant outcomes containing qualitative or quantitative values of marine ecosystem services and disservices	Articles without qualitative or quantitative values of marine ecosystem services and disservices (e.g., narrative review, opinion paper, policy paper without new quantitative or qualitative values defined).

The screening phase

Inclusion and exclusion criteria

Screening steps	*Criteria*	*Inclusion criteria*	*Exclusion criteria*
Title	***Ecosystem service***	*Study assessing any ecosystem service (as well as related terms of ES like "nature contributions to people") no matter the types of values*	*Study on the ecological structure, process or function of the desert (e.g. article on primary production) and/or without ES values*
Title	***Type of ecosystems***	*Values on wetlands and related ecosystems*	*Study not on wetlands or without ES results/values on wetlands*
Abstract Full-text	***Type of articles***	*Scientific and technical articles and reports; doctoral theses*	*Methodological papers*

- ✓ Increasingly precise criteria at each stage of sorting while maintaining previous criteria
- ✓ A priori criteria preserve transparency and repeatability and minimize bias.
- ✓ When uncertain, be inclusive
- ✓ Decisions to be made according to different situations and must be transcribed for transparency and repeatability
- ✓ There may be criteria not related to PECO, on the language of the article, the type of articles (eg review), the quality or the type of data



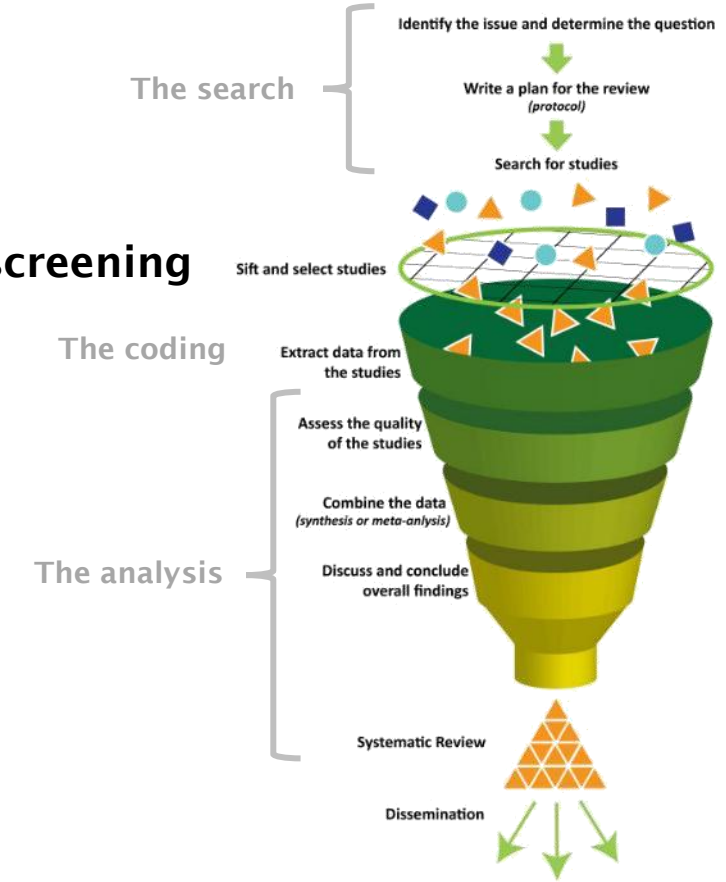
Systematic review methodology

(Jessica Kaufman, Cochrane Consumers & Communication Review Group, Centre for Health Communication and Participation, La Trobe University, 2011)

How to do a systematic review?

The software

Tips for efficient sorting
- Report the exclusion decision
- Search the library for relevant keywords - filter these articles to sort them together
- Work in blocks of 30-45 minutes
- Work simultaneously with other people (facilitates quick consultation)
- BUT BE CAREFUL of any exclusion without a human reading the article!



Systematic review methodology

(Jessica Kaufman, Cochrane Consumers & Communication Review Group, Centre for Health Communication and Participation, La Trobe University, 2011)

Excel Microsoft / WPI / Office - free

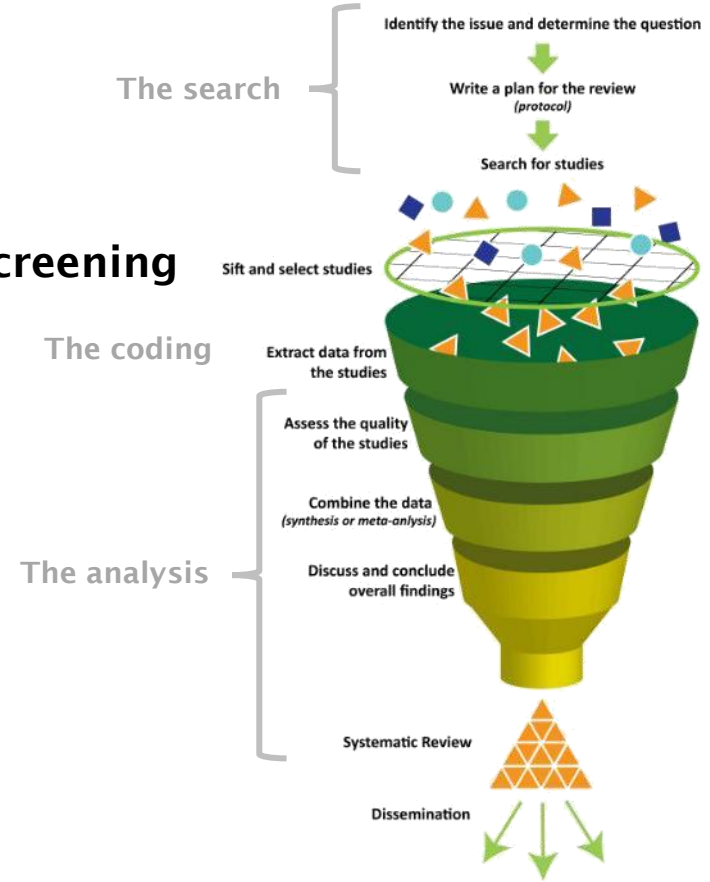
Need to be very organized - difficulty when evaluating with multiple reviewers.

No. of articles	Article title	Sort by title	Abstract sorting	Pdf found	Sort entire text
23	Evaluation of	Yes	NO	-	-
24	Ecosystem…	NO	-	-	-
2X	Mapping…	Yes	Yes	Yes	No

The screening phase

The software

Title_ screening	Abstract_ screening	Fulltext_ found	Final_ decision	Duplicate	Data extracted	Search_origin	Authors
yes	yes	yes	yes		yes	GoogleScholar	Al-Assaf, A., Albalawneh, A., Hjazin, A.,Kabariti, R.,
yes	yes	yes	no			GoogleScholar	A Alassaf, D Alhunaiti, J Dick…
				yes		GoogleScholar	A Cuni-Sanchez, M Pfeifer, R Marchant, ND Burgess
no						GoogleScholar	A Troy, MA Wilson
yes	yes	yes	no			GoogleScholar	Aanderud, Z.T., Bahr, J., Robinson, D.M., Belnap, J., Campbell, T.P., Gill, R.A., McMillian, B., St. Clair, S.
no						WOS_tl_ts_423	Aanderud, ZT; Bahr, J; Robinson, DM; Belnap, J; Campbell, TP; Gill, RA; McMillian, B; Clair, SS



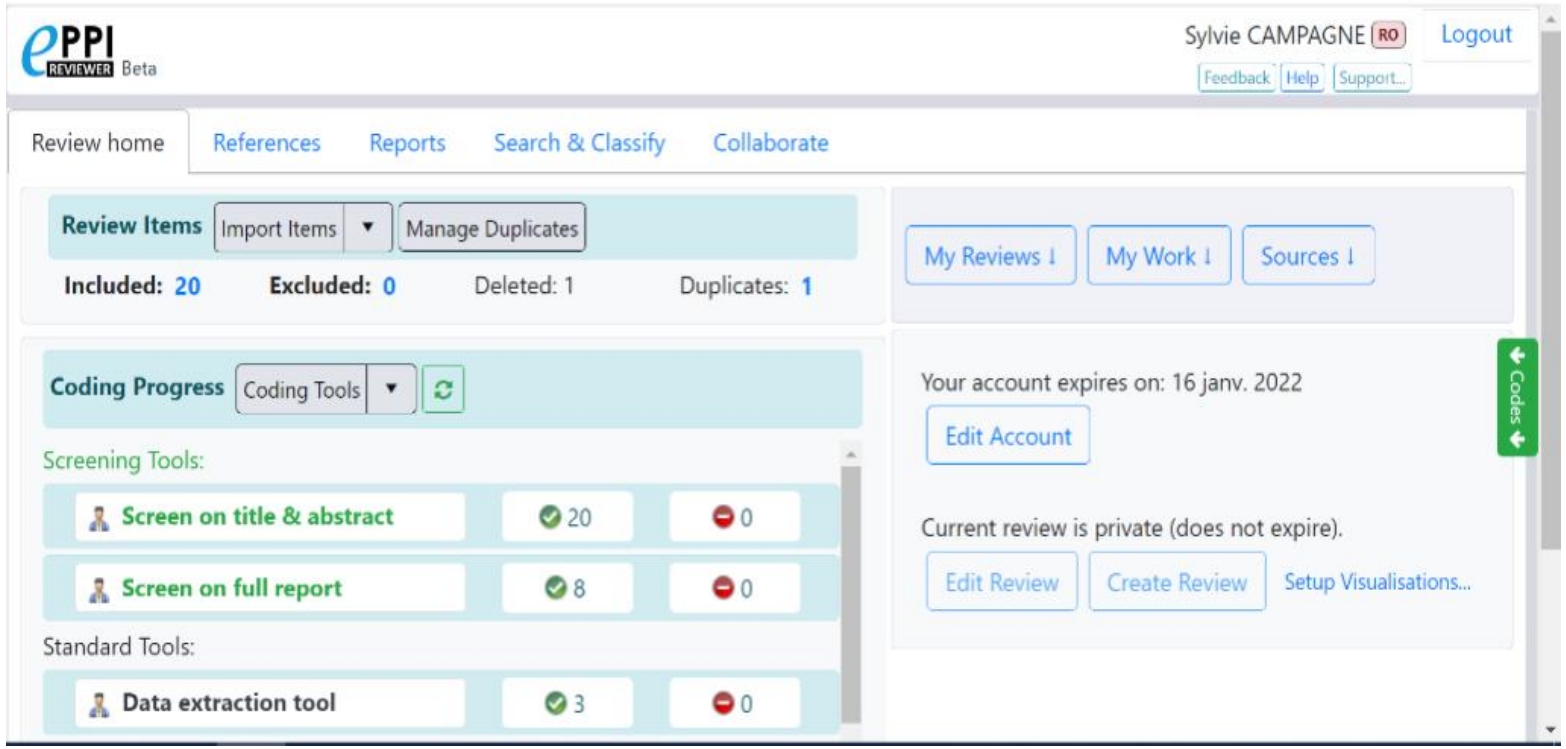
Systematic review methodology

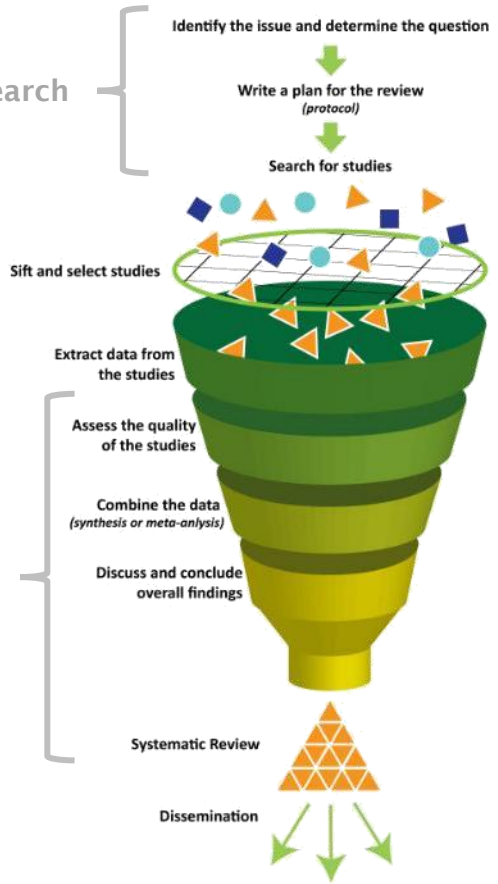
(Jessica Kaufman, Cochrane Consumers & Communication Review Group, Centre for Health Communication and Participation, La Trobe University, 2011)

The screening phase

EPPI reviwer
- Online tool – not free
- Very practical if several reviewers
- One place for every data

= Free version CADIMA



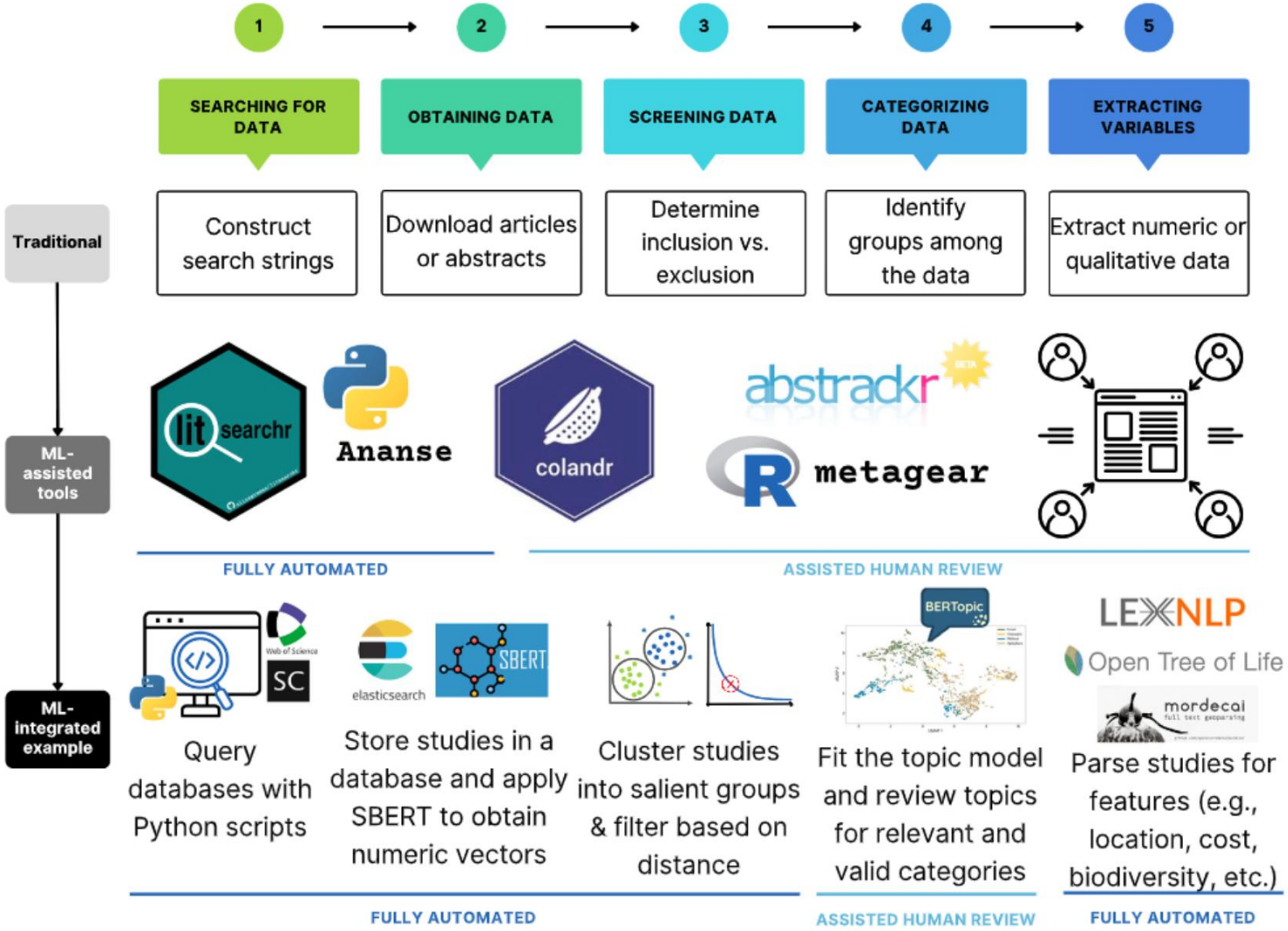


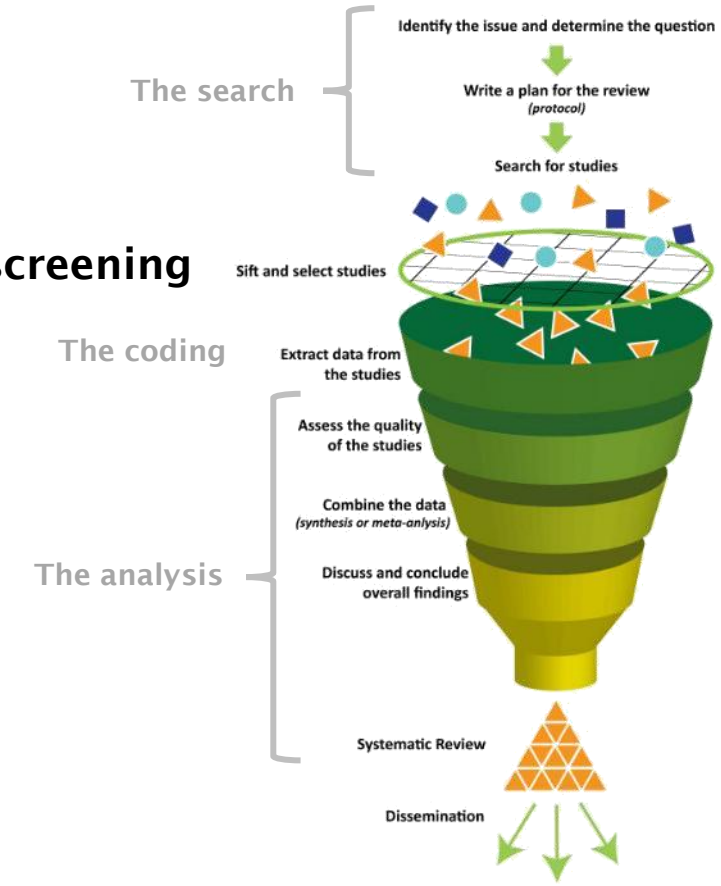
Systematic review methodology

(Jessica Kaufman, Cochrane Consumers & Communication Review Group, Centre for Health Communication and Participation, La Trobe University, 2011)

The screening phase

IA help





Systematic review methodology

(Jessica Kaufman, Cochrane Consumers & Communication Review Group, Centre for Health Communication and Participation, La Trobe University, 2011)

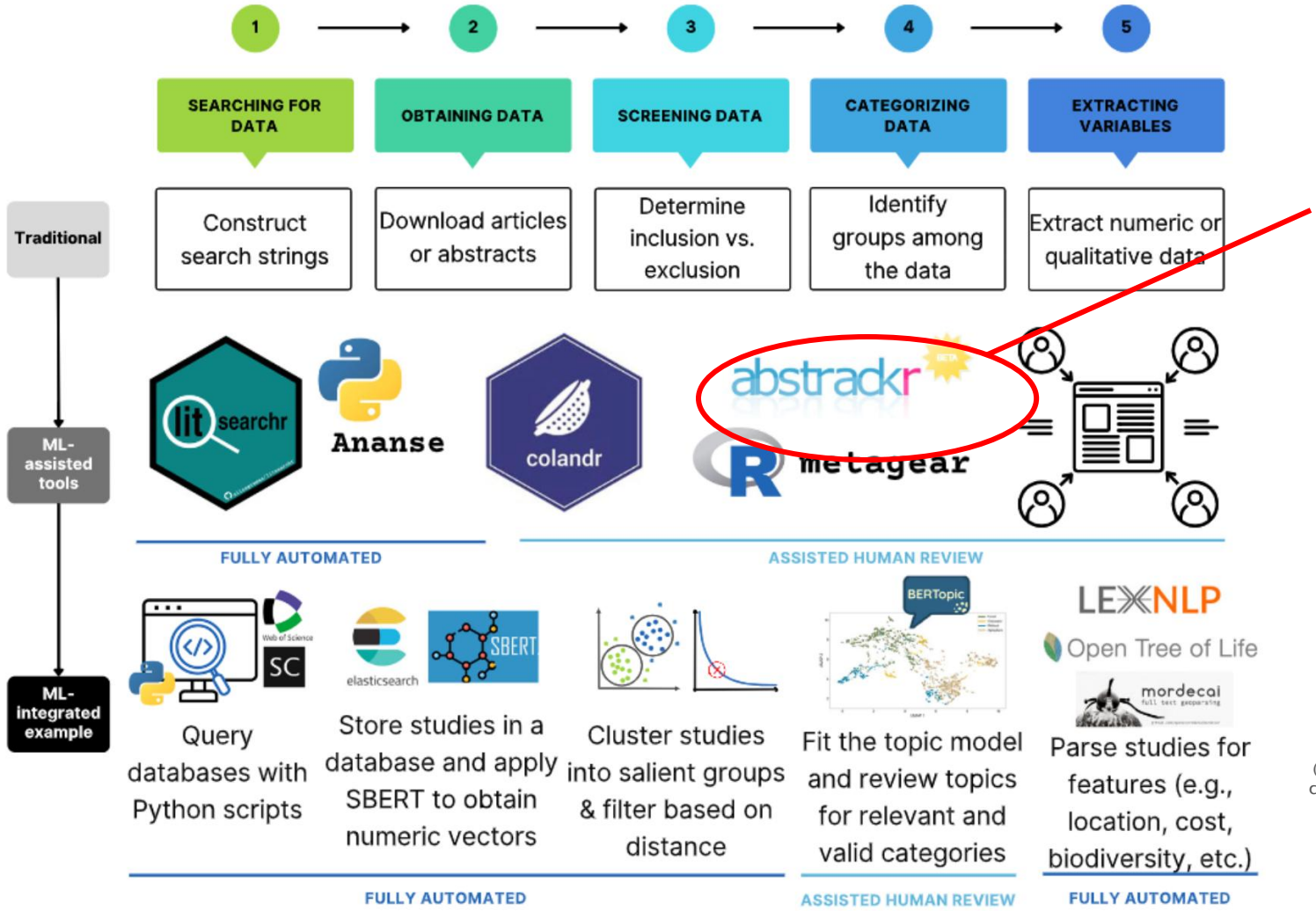
Systematic review methodology

(Chang et al. 2025 New opportunities and challenges for conservation evidence synthesis from advances in natural language processing. Conservation Biology. 2025;39:e14464, https://doi.org/10.1111/cobi.14464)

The screening phase

by EDF and KIT

IA help



- ✓ Free
- ✓ Easy to use
- ✓ Assist our screening phase

Semiautomated platform to screen abstracts for relevance (Gates et al., 2018; Wallace et al., 2012)

Systematic review methodology

(Chang et al. 2025 New opportunities and challenges for conservation evidence synthesis from advances in natural language processing. Conservation Biology. 2025;39:e14464, https://doi.org/10.1111/cobi.14464)

Agreement between different evaluators

Cohen's Kappa test for 2 raters

(see also Light's Kappa, Fleiss's Kappa)

→ Sorting results +/- disparate despite IN/OUT criteria

→ Perform assessment counts and gather them in a contingency table

Example: out of 110 articles

		Jon		
		YES	NO	DOUBT
Damien	YES	15	2	3
	NO	0	69	8
	DOUBT	0	4	9

Agreement between different evaluators

Cohen's Kappa test for 2 raters

(see also Light's Kappa, Fleiss's Kappa)

```r
# Tableau de contingence
xtab <- as.table(rbind(c(15, 2, 3), c(0, 69, 8), c(0, 4, 9)))
# Statistiques descriptives
diagonal.counts <- diag(xtab)
N <- sum(xtab)
row.marginal.props <- rowSums(xtab)/N
col.marginal.props <- colSums(xtab)/N
# Calculer kappa (k)
Po <- sum(diagonal.counts)/N
Pe <- sum(row.marginal.props*col.marginal.props)
k <- (Po - Pe)/(1 - Pe)
k
```

→ Calculation of Kappa

$$kappa(\kappa) = \frac{P_o - P_e}{1 - P_e}$$

N: the total sum of all cells in the table

Po: *proportion of observed agreement* , the sum of the diagonal proportions, which corresponds to the proportion of cases where the two raters assigned the same categories

Pe: *proportion of random agreement* , the sum of the products of the marginal proportions of the rows and columns

Example: Round 1 (Jon, Damien)

k = 0.68

Inter-Rater Reliability Essentials - A practical Guide in R(2019); {epiR} package

Agreement between different evaluators

Cohen's Kappa test for 2 raters

(see also Light's Kappa, Fleiss's Kappa)

→ Interpretation

Example: we had to discuss before a second round… :)

Less punitive: % agreement, in our case

93/110 = 85%

Value of k	Strength of the agreement
< 0	Poor
0.01 - 0.20	Light
0.21 - 0.40	Fair
0.41 - 0.60	Moderate
0.61 - 0.80	Substantial
0.81 - 1	Almost perfect

Inter-Rater Reliability Essentials - A practical Guide in R(2019); {epiR} package

The key phases

The search

- Define the question
- Define the search terms
- Define the search string
- Define the search sources : a bibliographic database (WoS) and a web search engine (google scholar)

The screening

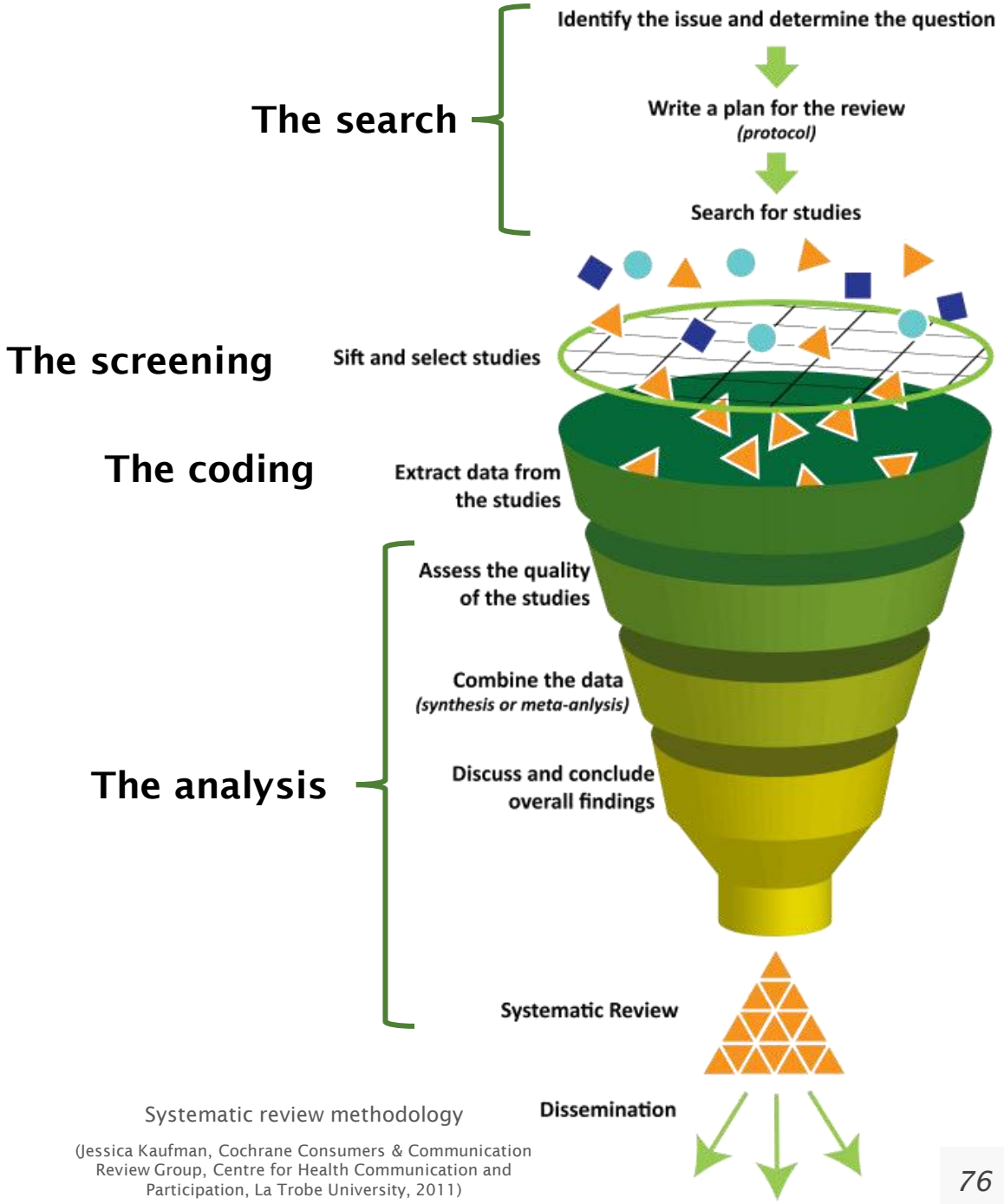
- Define the eligibility criteria

The coding

- Harmonize the data extracted

The analysis

- Show review descriptive statistics : Use standard reporting tool
- Show bibliographic information
- Show extracted data



Systematic review methodology

(Jessica Kaufman, Cochrane Consumers & Communication Review Group, Centre for Health Communication and Participation, La Trobe University, 2011)

Reporting

The needs

- Transparency, rigor and traceability are key objectives of systematic maps

- In the “ classic ” reviews the details of the stages and volumes are only very rarely exposed, sometimes deductible but most often totally hidden . Decisions are not tracked .

Without reporting:

⇒ The review is not replicable

⇒ The reader cannot understand how the final result is obtained (missing of studies primary ? high rate of inaccessible pdfs , etc.)

TRACEABILITY

The needs

Light pollution: A review of the scientific literature

GeneralSearch&SID=F5ZJLB669fH5Bx5kkcR&preferencesSaved=) from the beginning of the database (2003) to 2019. A total of 8051 publications were obtained on October 3, 2020. It needs to be pointed out the authors of this review paper collectively can work in English, German, Spanish and French languages. However, we restricted our search on publications written in English only for the general scientific community, considering English as a vehicular language (Clouet, 2017; Gordin, 2015). During the literature selection, all the abstracts were assessed to select the only ones containing the information about light pollution in the introduction, methods, results or conclusions. Books were not included and only one PhD thesis, indexed in this database, was taken into account. In the end, 621 publications were used. Therefore, there may be valuable information published in other literature finders (e.g. Google Scholar), other different publication formats or distinct languages that were not considered.

The information was organised and classified in an Excel datasheet under the following criteria:

Rodrigo-Comino et al., 2021
The Anthropocene Review => AI: 3.682

⇒ **What happened between the export and the final corpus?**
⇒ **How many articles are excluded and on what criteria?**
⇒ **How many pdfs not found?**

A synthesis of two decades of research documenting the effects of noise on wildlife

II. LITERATURE REVIEW METHODOLOGY

We conducted a detailed literature search using Thompson's *ISI Web of Science* within the following subject areas 'Acoustics', 'Zoology', 'Ecology', 'Environmental Sciences', 'Ornithology', 'Biodiversity Conservation', 'Evolutionary Biology', and 'Marine Freshwater Biology' from 1990 to 2013. The specific search terms were ([WILDLIFE or ANIMAL or MAMMAL or REPTILE or AMPHIBIAN or BIRD or FISH or INVERTEBRATE] and [NOISE or SONAR]), which returned a total of 2205 scientific peer-reviewed articles. These papers were filtered so only empirical studies focussed on documenting the effects of anthropogenic noise on wildlife were included in the final data set ($N = 242$). Reviews, syntheses, method papers ($N = 32$), and studies dealing solely with natural acoustic sources ($N = 22$) were excluded.

Shannon et al., 2016
Biological Reviews => AI: 14,350

CEESAT form for overviews CEEDER assessment

4.3 Are eligibility decisions transparently reported? *

Rationale: Listing all articles that were screened for eligibility and indicating whether each was included or excluded in c synthesis (usually as supplementary material), makes it clear whether potentially relevant studies have been omitted according to the eligibility criteria or were not captured by the search. Documenting the reasons for article exclusion at text is essential for transparency.

Mark only one oval.

- 4 - Gold: The number of unique articles found during the searches (after removal of duplicates) is presented AND The number excluded at each stage of the screening process is fully presented (e.g. in a flow diagram or table) AND Reasons for exclusion of each article/study considered at full-text are presented (e.g. in an appendix) AND A list of eligible (included) articles/studies is presented as a separate list or in tables (not just included in reference list)
- 3 - Green: The number of articles excluded at each stage of the screening process is reported but some aspects missing (e.g. number of unique articles or articles unobtainable) AND Reasons for exclusion of each article/study considered at full-text are presented (e.g. in an appendix) AND A list of eligible (included) articles/studies is presented as a separate list or in tables (not just included in reference list).
- 2 - Amber: The number of articles excluded during the screening process is reported (or inferable) but some aspects missing (e.g. number of unique articles or articles unobtainable) AND A list of eligibl (included) articles/studies is presented as a separate list or in tables (not just included in reference list)
- 1 - Red: No to either or both of the amber criteria above

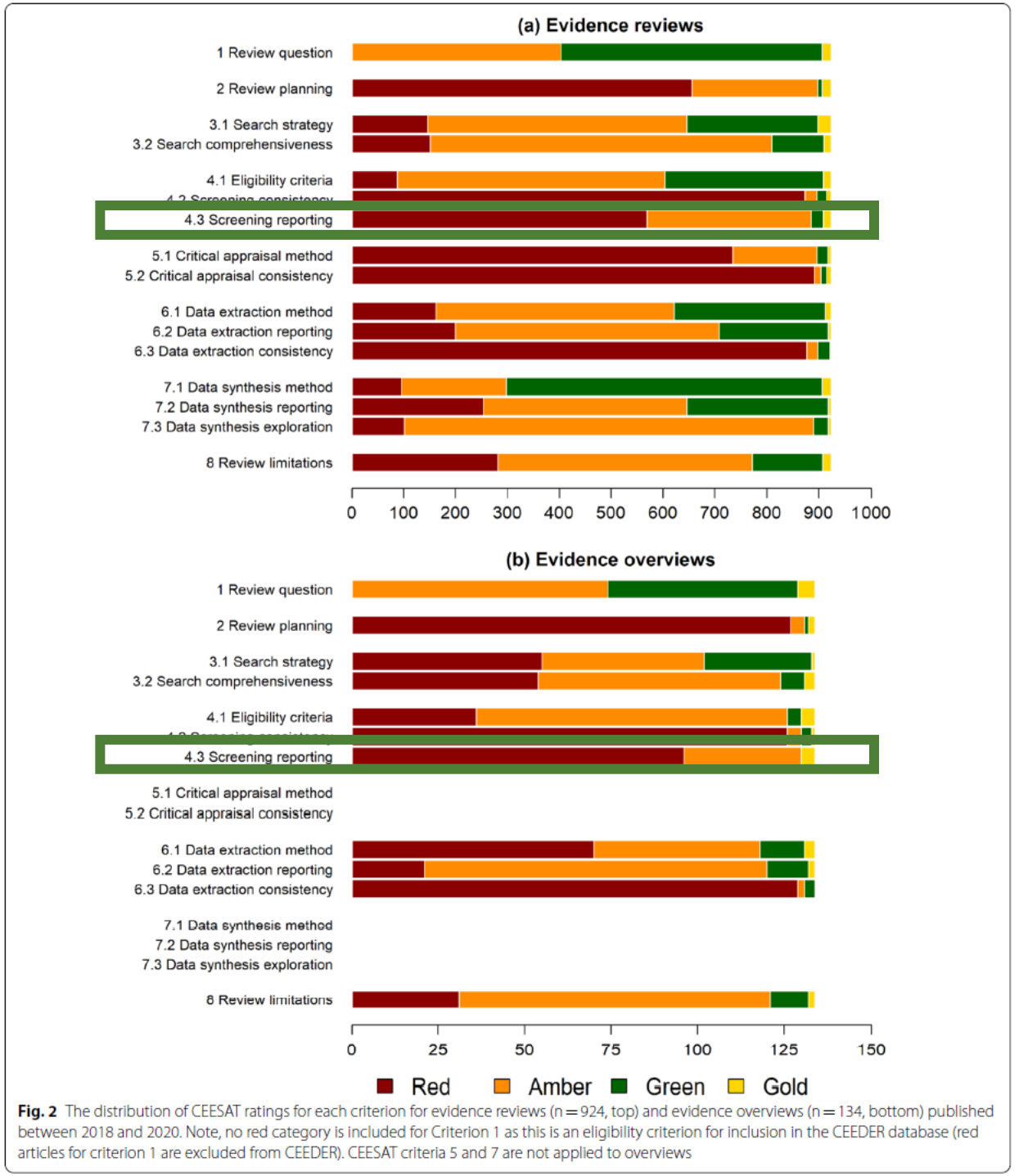


Fig. 2 The distribution of CEESAT ratings for each criterion for evidence reviews (n = 924, top) and evidence overviews (n = 134, bottom) published between 2018 and 2020. Note, no red category is included for Criterion 1 as this is an eligibility criterion for inclusion in the CEEDER database (red articles for criterion 1 are excluded from CEEDER). CEESAT criteria 5 and 7 are not applied to overviews

ROSES

- ROSES = **RepOrting standards for Systematic Evidence Syntheses**
- Forms designed specifically for systematic reviews and maps in the field of conservation and environmental management have been produced by the EEC
- ROSES was created by a team of researchers with experience in systematic reviews in the environmental field.
- From pre-existing tools in other fields (like PRISMA in the medical field)

https://www.roses-reporting.com/

Methodology | Open Access | Published: 19 March 2018

ROSES RepOrting standards for Systematic Evidence Syntheses: *pro forma*, flow-diagram and descriptive summary of the plan and conduct of environmental systematic reviews and systematic maps

Neal R. Haddaway, Biljana Macura, Paul Whaley & Andrew S. Pullin

Environmental Evidence **7**, Article number: 7 (2018) | Cite this article

14k Accesses | **214** Citations | **34** Altmetric | Metrics

Abstract

Reliable synthesis of the various rapidly expanding bodies of evidence is vital for the process of evidence-informed decision-making in environmental policy, practice and research. With the rise of evidence-base medicine and increasing numbers of published systematic reviews, criteria for assessing the quality of reporting have been developed. First QUOROM (Lancet 354:1896–1900, 1999) and then PRISMA (Ann Intern Med 151:264, 2009) were developed as reporting guidelines and standards to ensure medical meta-analyses and systematic reviews are reported to a high level of detail. PRISMA is now widely used by a range of journals as a pre-submission checklist. However, due to its development for systematic reviews in

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Sections References

https://doi.org/10.1186/s13750-018-0121-7

Systematic Review

Criteria

A systematic review is a review of evidence relevant to a clearly formulated question that uses systematic and explicit methods to identify, select and critically appraise relevant research, and to collect and analyse data from the studies that are included within the review. Authors should note that all systematic reviews published in Environmental Evidence will have been conducted according to the CEE process, including registration and publication of a protocol. Please contact the Editors at an early stage of planning your review. Full guidelines and standards can be accessed here and should have been read carefully at the protocol stage.

Note that Environmental Evidence considers it mandatory for all submitting authors to complete the relevant ROSES forms as part of their submission to demonstrate that they have included all relevant methodological details in their documents. Authors should also use the ROSES template for a flow diagram to report inclusion/exclusion process and included literature sources. Templates for ROSES forms can be accessed here and the for flow diagram here. ROSES forms and flow diagram should always be downloaded from the ROSES website as it contains most up-to-date templates. Please note the formatting of your submission should follow our guidelines and not the ROSES template. The ROSES forms should be uploaded along with the submitted manuscript as a single-page supplementary file in a PDF format. Failure to do so could result in your manuscript being returned before review. In order to convert your completed ROSES form from a spreadsheet to a single-page PDF document, please scale the ROSES sheet to fit A4 landscape size.

For systematic reviews to be relevant to policy and practice they need to be as up-to-date as possible. Consequently, at the time of acceptance for publication, the search should normally be less than two years old. We therefore recommend that systematic reviews should be submitted

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Collaboration for Environmental Evidence

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CEE Guidelines and Standards

Article Collections

Annual Journal Metrics

Citation Impact
3.734 - 2-year Impact Factor (2021)
5.827 - 5-year Impact Factor (2021)
1.322 - Source Normalized Impact per Paper (SNIP)

Environmental Evidence considers it mandatory for all authors to complete ROSES forms as part of their submission to demonstrate that they have included all relevant methodological details in their papers. Authors should also use the ROSES template for a flow chart to indicate the inclusion/exclusion process and the literature sources included.

ROSES

- This is a form to fill out, with a list of details about the review/map process (number of databases, volumes, etc.)

- It is to be included as the first additional file of the manuscript (protocol & map/review), in PDF format

- The ROSES form :
  - makes manuscript writing easier for authors by allowing them to ensure they have included the right information with the right level of detail

  ⇒ writing assistance, can avoid manuscript returns

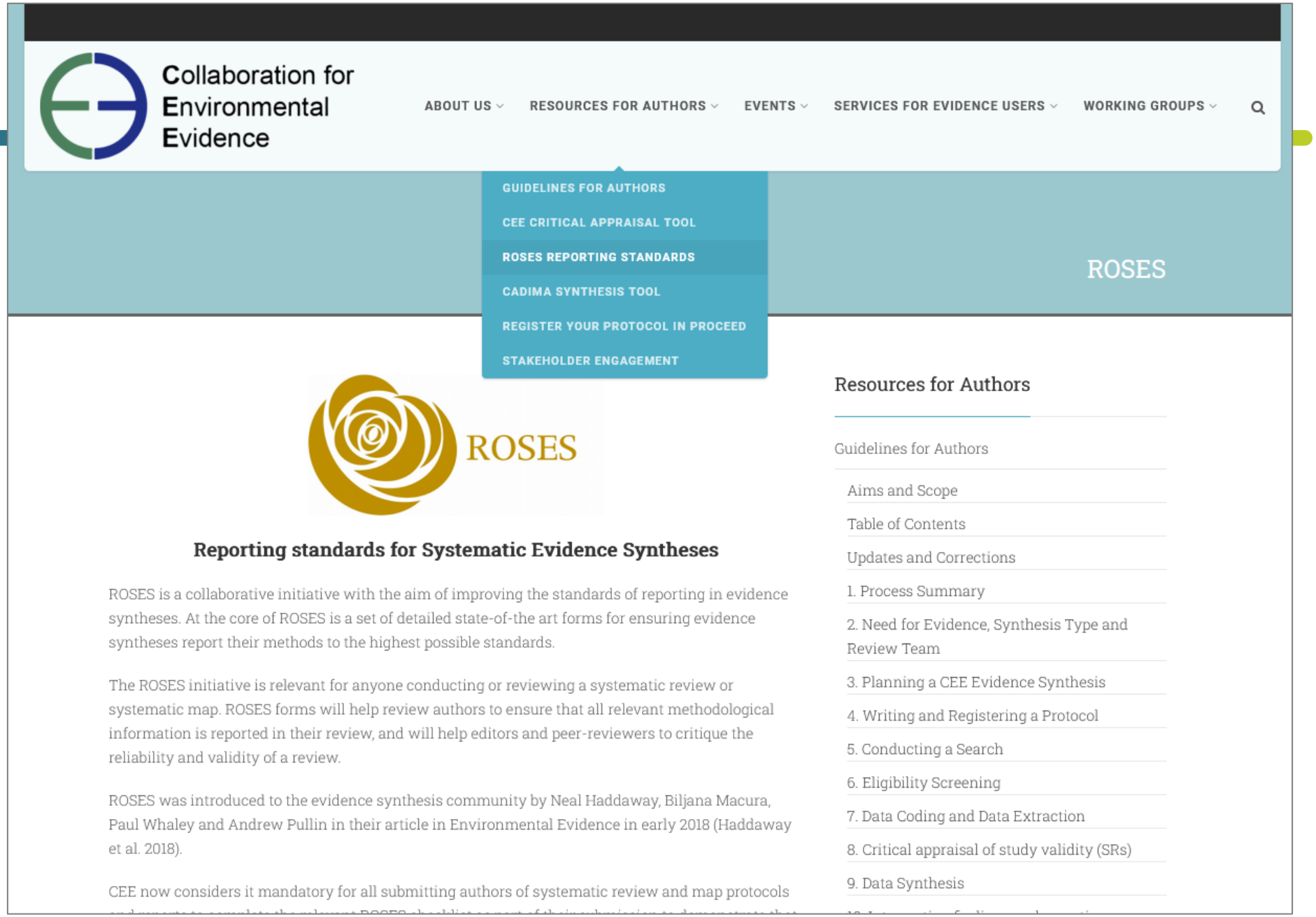
  - ensures that all necessary content required by the CEE guidelines is present and described when submitting the manuscript

  ⇒ EEJ control tool (“checklist”)

  - is a guarantee and information support for future readers and users of a map/magazine

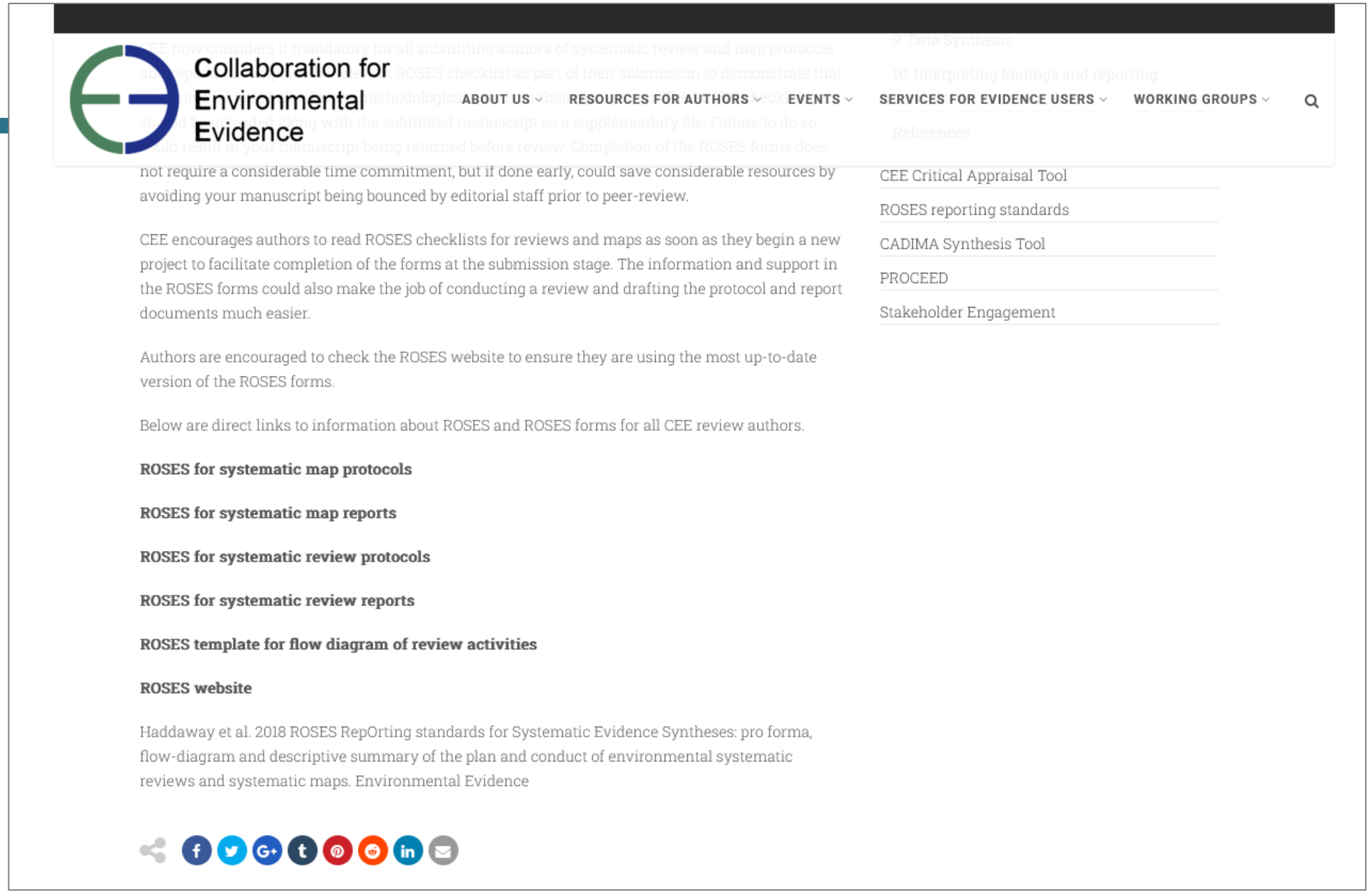
  ⇒ guarantee of transparency and rigor

/!\ Always re-download forms to make sure you have the latest versions (regular updates)



https://environmentalevidence.org/roses/

/!\ Toujours aller retélécharger les formulaires pour être sûrs d'avoir les dernières versions (MAJ régulières)

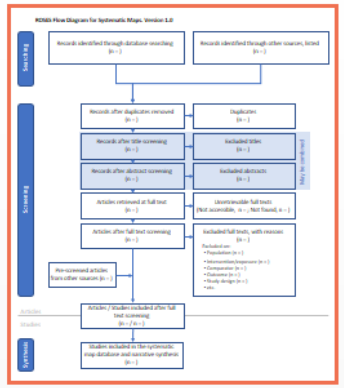


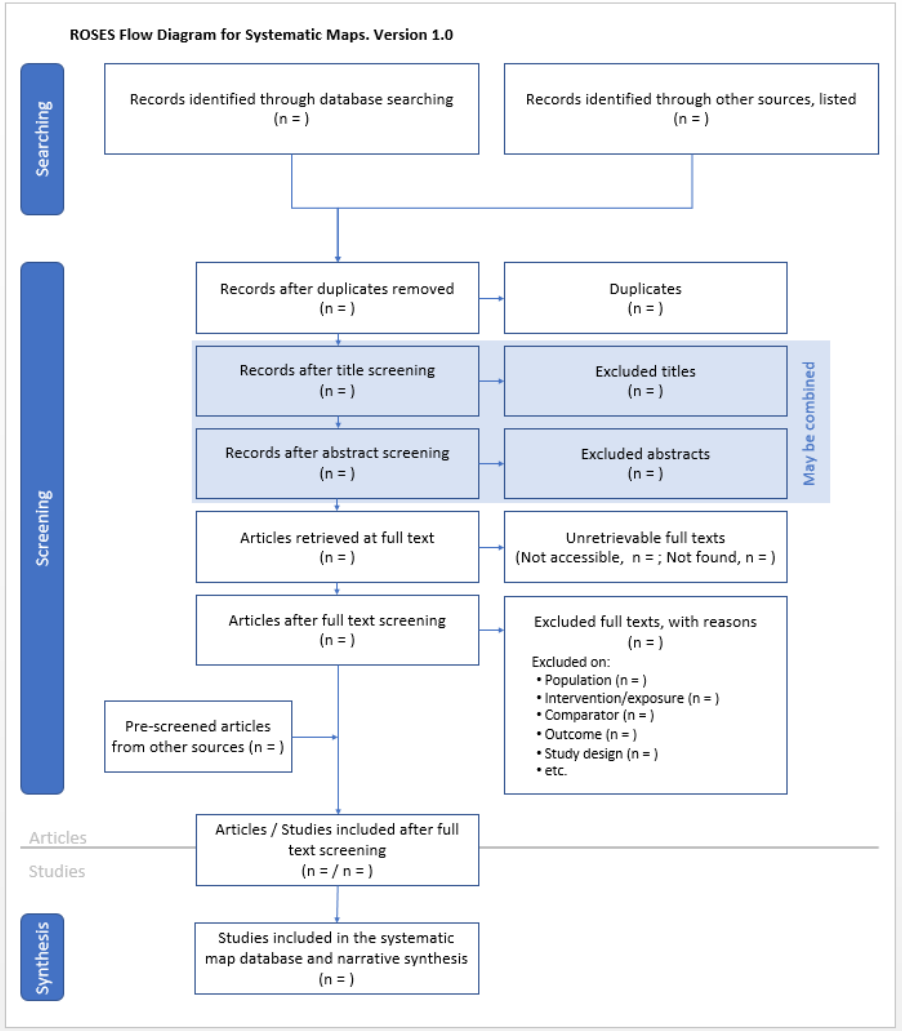
https://environmentalevidence.org/roses/

ROSES
Flow diagram for systematic maps

A flow diagram is a tree structure that allows you to quickly see the entire map or review process and the evolution of volumes over the stages.

It is to be included as a figure in the manuscript of a map/review

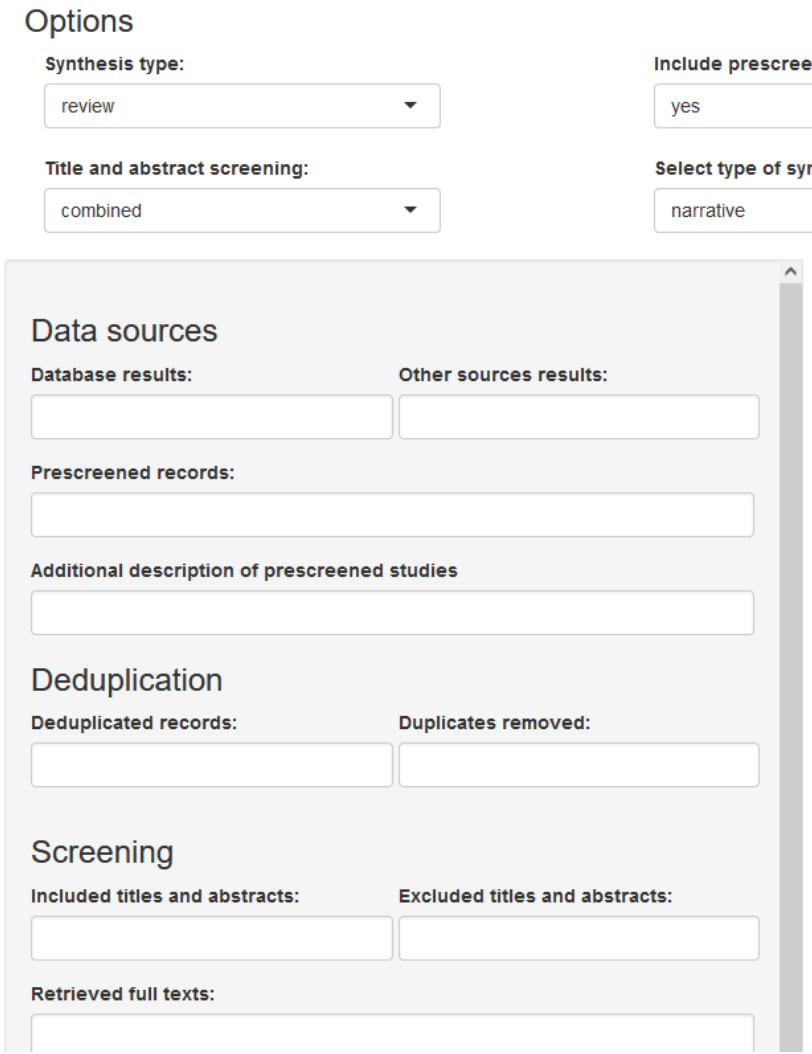


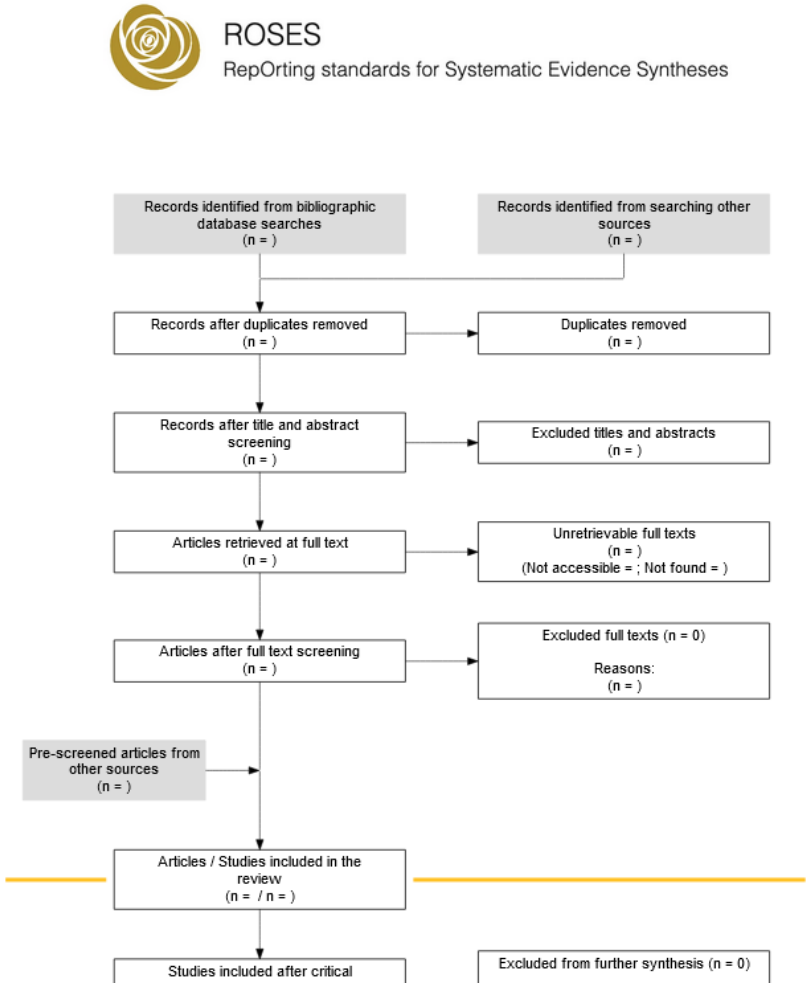


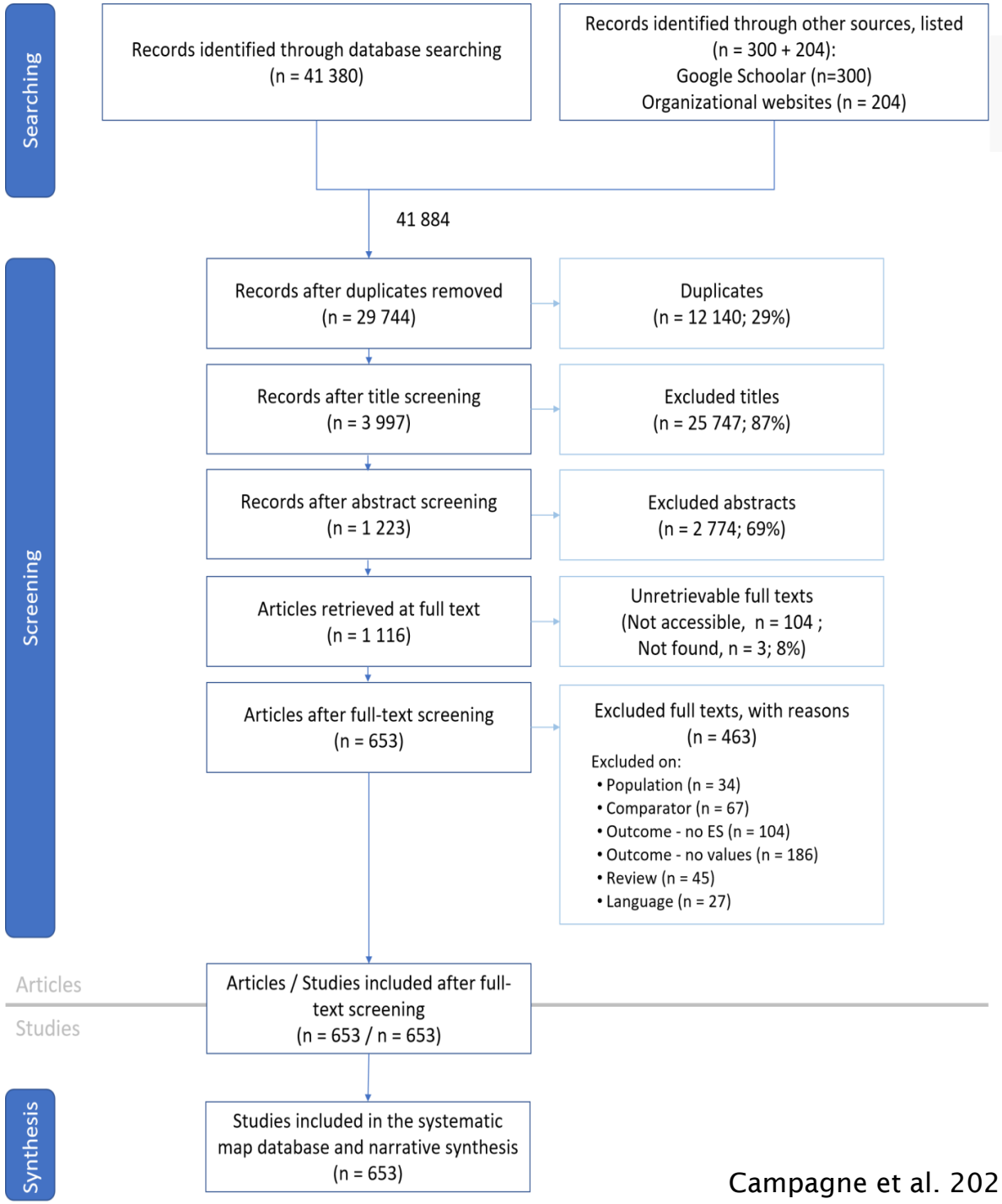
Please cite as: Haddaway NR, Macura B, Whaley P, and Pullin AS. 2017. ROSES flow diagram for systematic maps. Version 1.0. DOI: 10.6084/m9.figshare.6085940

ROSES

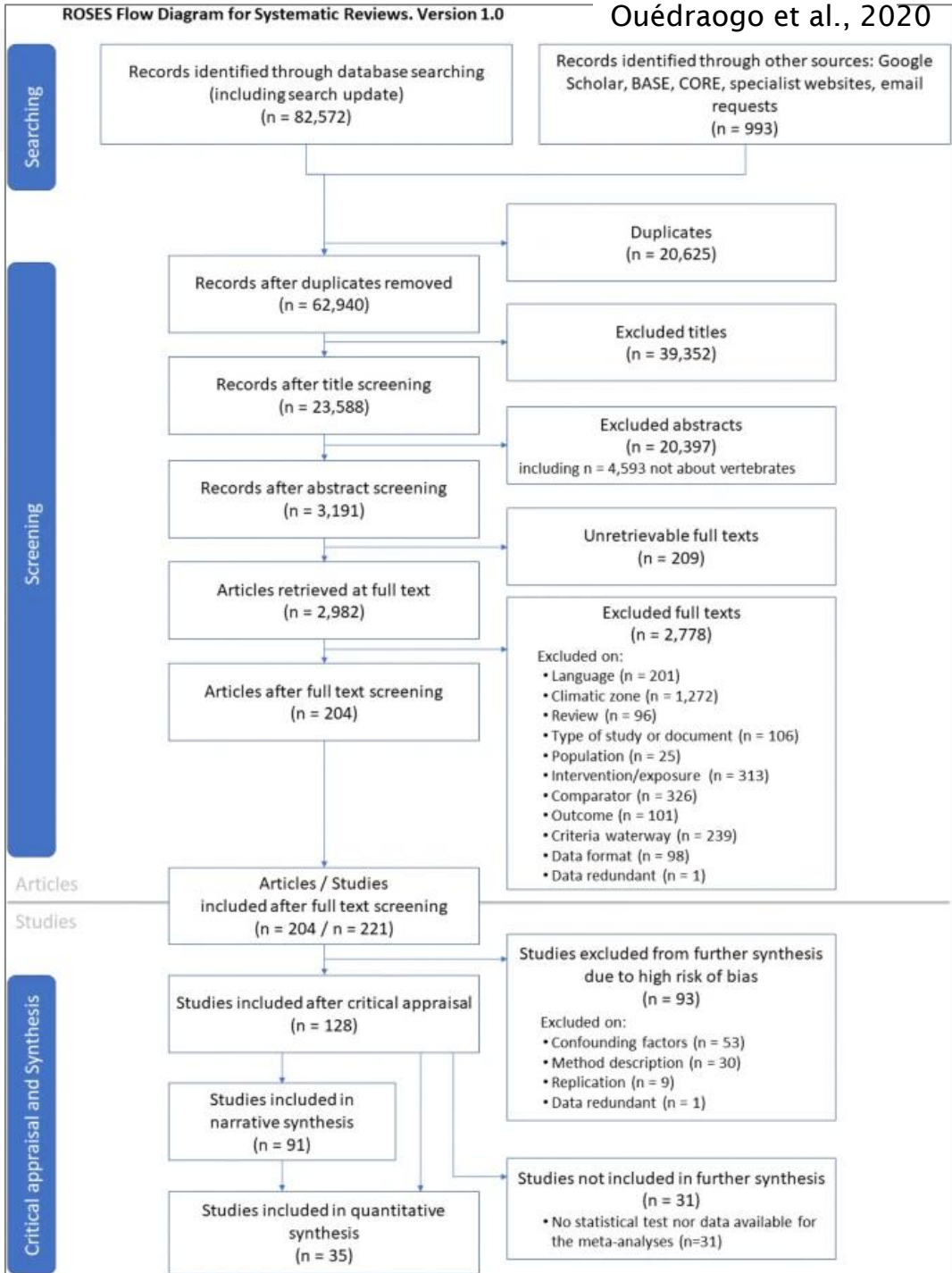
ROSES
Online tool for producing ROSES flow diagrams for systematic maps and reviews
https://estech.shinyapps.io/roses_flowchart/





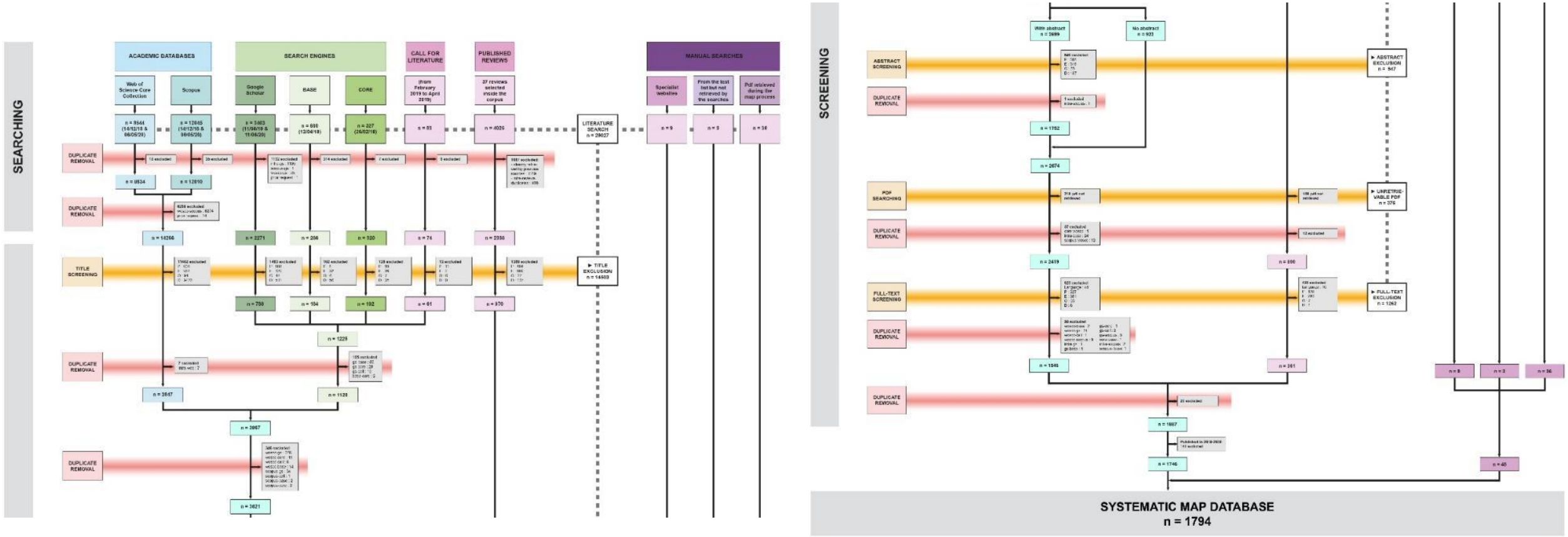


Campagne et al. 2023



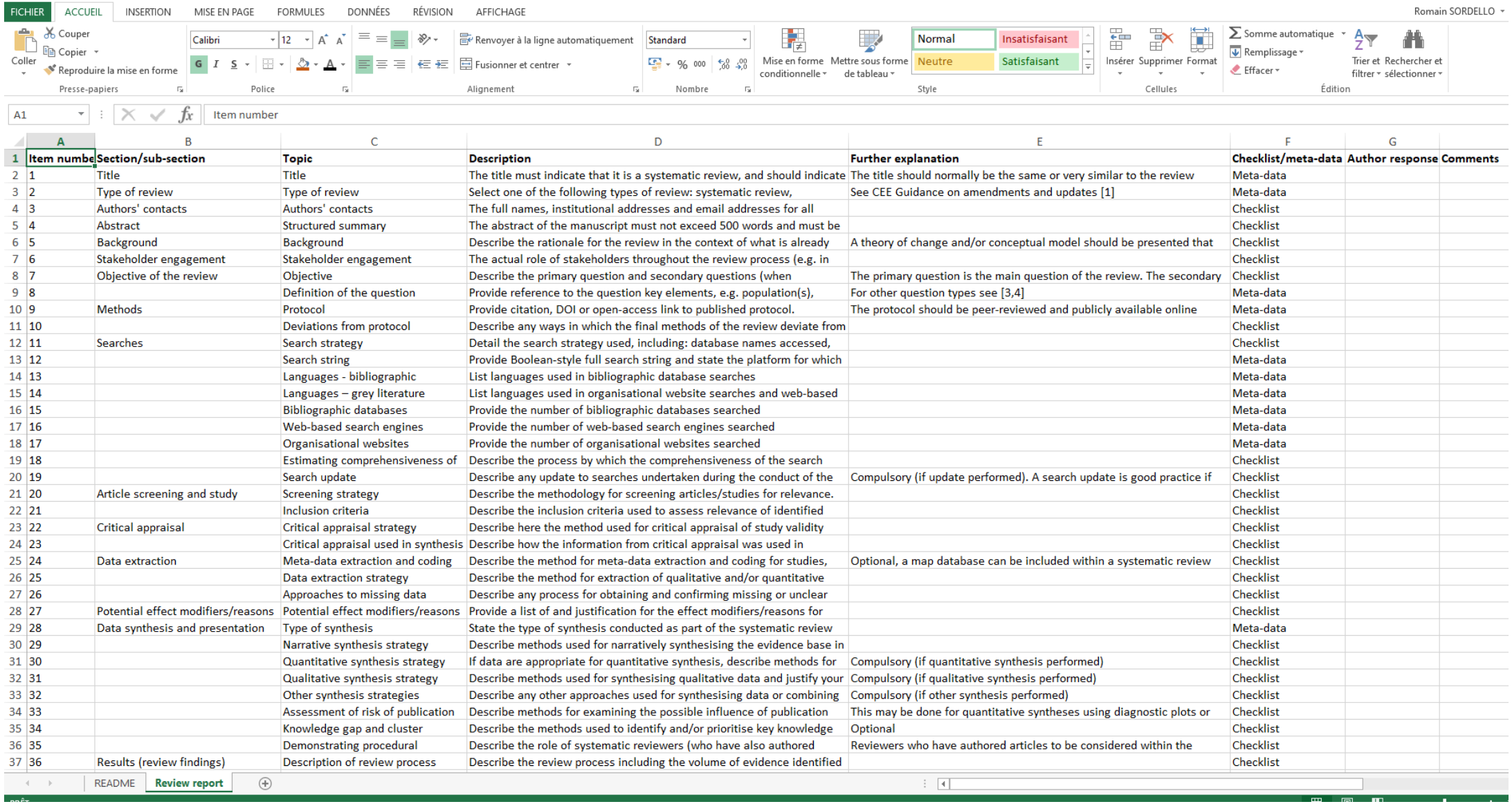
Ouédraogo et al., 2020

More detailed flow diagram



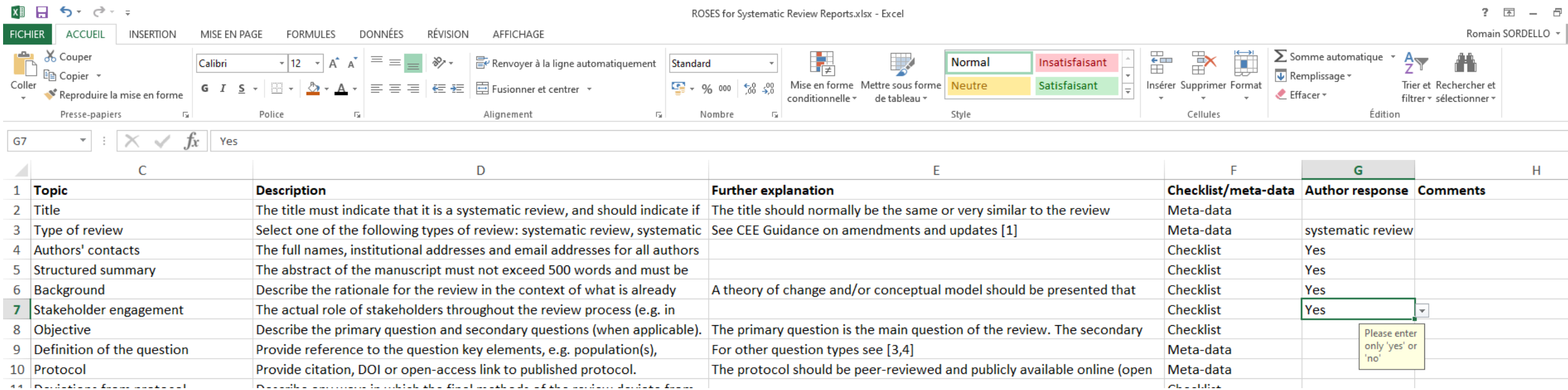
Sordello et al., 2020 (additional file)

ROSES: the form for systematic reviews



Item number	Section/sub-section	Topic	Description	Further explanation	Checklist/meta-data	Author response	Comments
1	Title	Title	The title must indicate that it is a systematic review, and should indicate	The title should normally be the same or very similar to the review	Meta-data		
2	Type of review	Type of review	Select one of the following types of review: systematic review,	See CEE Guidance on amendments and updates [1]	Meta-data		
3	Authors' contacts	Authors' contacts	The full names, institutional addresses and email addresses for all		Checklist		
4	Abstract	Structured summary	The abstract of the manuscript must not exceed 500 words and must be		Checklist		
5	Background	Background	Describe the rationale for the review in the context of what is already	A theory of change and/or conceptual model should be presented that	Checklist		
6	Stakeholder engagement	Stakeholder engagement	The actual role of stakeholders throughout the review process (e.g. in		Checklist		
7	Objective of the review	Objective	Describe the primary question and secondary questions (when	The primary question is the main question of the review. The secondary	Checklist		
8		Definition of the question	Provide reference to the question key elements, e.g. population(s),	For other question types see [3,4]	Meta-data		
9	Methods	Protocol	Provide citation, DOI or open-access link to published protocol.	The protocol should be peer-reviewed and publicly available online	Meta-data		
10		Deviations from protocol	Describe any ways in which the final methods of the review deviate from		Checklist		
11	Searches	Search strategy	Detail the search strategy used, including: database names accessed,		Checklist		
12		Search string	Provide Boolean-style full search string and state the platform for which		Meta-data		
13		Languages - bibliographic	List languages used in bibliographic database searches		Meta-data		
14		Languages – grey literature	List languages used in organisational website searches and web-based		Meta-data		
15		Bibliographic databases	Provide the number of bibliographic databases searched		Meta-data		
16		Web-based search engines	Provide the number of web-based search engines searched		Meta-data		
17		Organisational websites	Provide the number of organisational websites searched		Meta-data		
18		Estimating comprehensiveness of	Describe the process by which the comprehensiveness of the search		Checklist		
19		Search update	Describe any update to searches undertaken during the conduct of the	Compulsory (if update performed). A search update is good practice if	Checklist		
20	Article screening and study	Screening strategy	Describe the methodology for screening articles/studies for relevance.		Checklist		
21		Inclusion criteria	Describe the inclusion criteria used to assess relevance of identified		Checklist		
22	Critical appraisal	Critical appraisal strategy	Describe here the method used for critical appraisal of study validity		Checklist		
23		Critical appraisal used in synthesis	Describe how the information from critical appraisal was used in		Checklist		
24	Data extraction	Meta-data extraction and coding	Describe the method for meta-data extraction and coding for studies,	Optional, a map database can be included within a systematic review	Checklist		
25		Data extraction strategy	Describe the method for extraction of qualitative and/or quantitative		Checklist		
26		Approaches to missing data	Describe any process for obtaining and confirming missing or unclear		Checklist		
27	Potential effect modifiers/reasons	Potential effect modifiers/reasons	Provide a list of and justification for the effect modifiers/reasons for		Checklist		
28	Data synthesis and presentation	Type of synthesis	State the type of synthesis conducted as part of the systematic review		Meta-data		
29		Narrative synthesis strategy	Describe methods used for narratively synthesising the evidence base in		Checklist		
30		Quantitative synthesis strategy	If data are appropriate for quantitative synthesis, describe methods for	Compulsory (if quantitative synthesis performed)	Checklist		
31		Qualitative synthesis strategy	Describe methods used for synthesising qualitative data and justify your	Compulsory (if qualitative synthesis performed)	Checklist		
32		Other synthesis strategies	Describe any other approaches used for synthesising data or combining	Compulsory (if other synthesis performed)	Checklist		
33		Assessment of risk of publication	Describe methods for examining the possible influence of publication	This may be done for quantitative syntheses using diagnostic plots or	Checklist		
34		Knowledge gap and cluster	Describe the methods used to identify and/or prioritise key knowledge	Optional	Checklist		
35		Demonstrating procedural	Describe the role of systematic reviewers (who have also authored	Reviewers who have authored articles to be considered within the	Checklist		
36	Results (review findings)	Description of review process	Describe the review process including the volume of evidence identified		Checklist		

ROSES: the form for systematic reviews



	C	D	E	F	G	H
1	**Topic**	**Description**	**Further explanation**	**Checklist/meta-data**	**Author response**	**Comments**
2	Title	The title must indicate that it is a systematic review, and should indicate if	The title should normally be the same or very similar to the review	Meta-data		
3	Type of review	Select one of the following types of review: systematic review, systematic	See CEE Guidance on amendments and updates [1]	Meta-data	systematic review	
4	Authors' contacts	The full names, institutional addresses and email addresses for all authors		Checklist	Yes	
5	Structured summary	The abstract of the manuscript must not exceed 500 words and must be		Checklist	Yes	
6	Background	Describe the rationale for the review in the context of what is already	A theory of change and/or conceptual model should be presented that	Checklist	Yes	
7	Stakeholder engagement	The actual role of stakeholders throughout the review process (e.g. in		Checklist	Yes	
8	Objective	Describe the primary question and secondary questions (when applicable).	The primary question is the main question of the review. The secondary	Checklist		
9	Definition of the question	Provide reference to the question key elements, e.g. population(s),	For other question types see [3,4]	Meta-data		
10	Protocol	Provide citation, DOI or open-access link to published protocol.	The protocol should be peer-reviewed and publicly available online (open	Meta-data		

PRISMA

- **PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses**

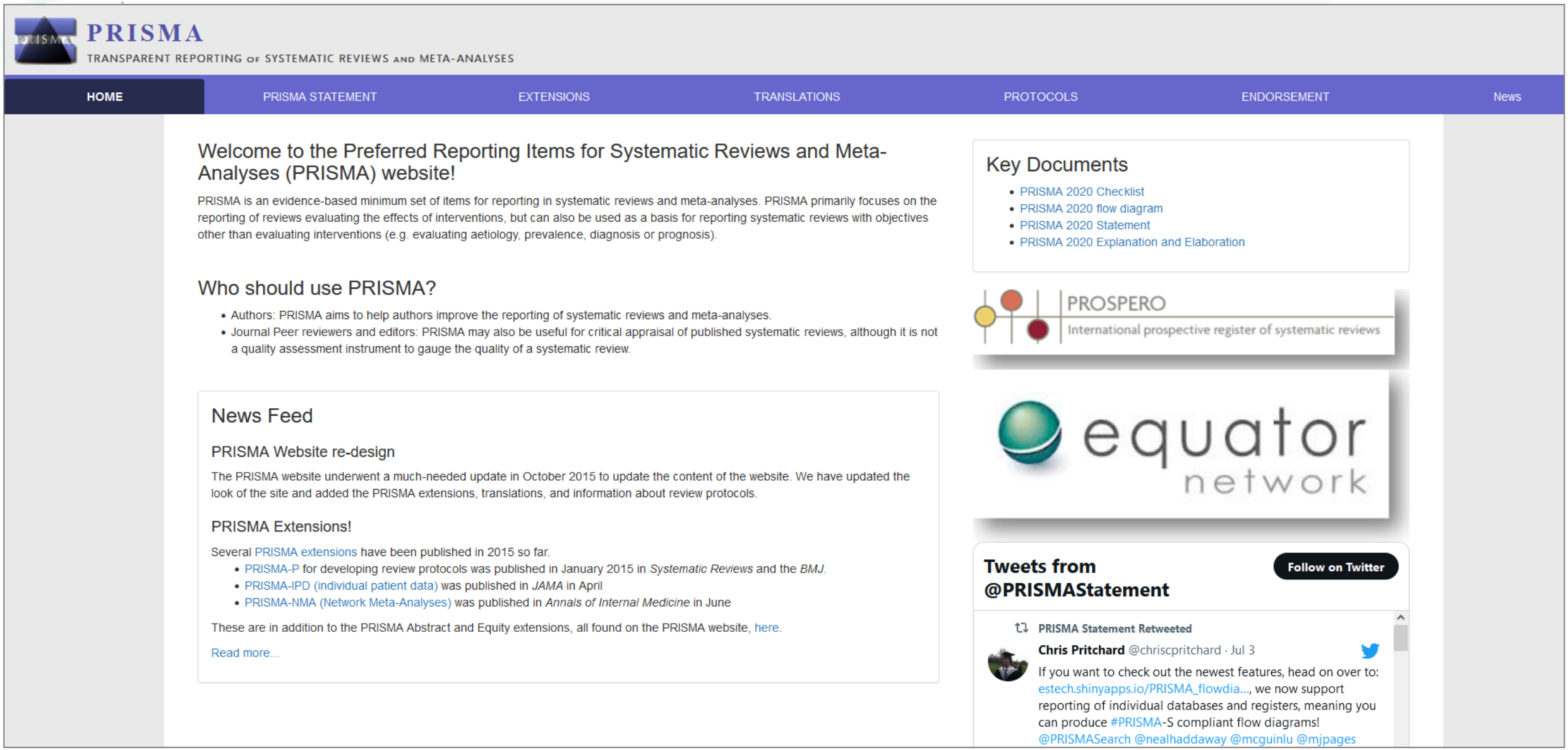
- PRISMA is an evidence-based minimum set of items for reporting in systematic reviews and meta-analyses

- Développement des reporting dès les années 1990 : Moher D, Cook DJ, Eastwood S, Olkin I, Rennie D, et al. for the QUOROM group (1999) Improving the quality of reporting of meta-analysis of randomized controlled trials: The QUOROM statement. Lancet 354: 1896-1900.

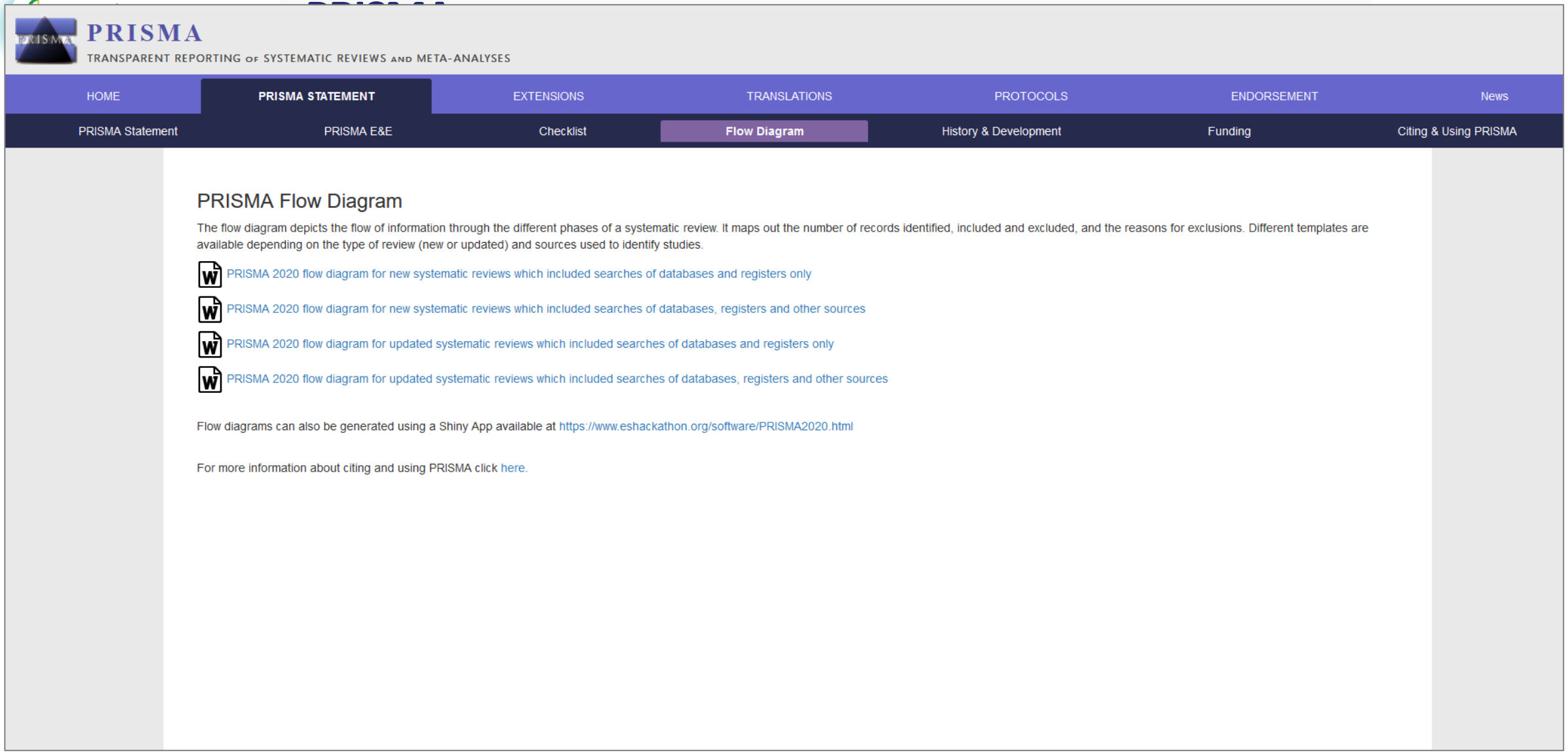
- En 2009, mise à jour des guidelines pour tenir compte de plusieurs avancées conceptuelles et pratiques dans le domaine des revues systématiques et a été rebaptisée PRISMA (Preferred Reporting Items of Systematic reviews and Meta-Analyses).

=> PRISMA Flow diagram (equivalent du ROSES Flow diagram)

=> PRISMA checklist (equivalent du ROSES Form)

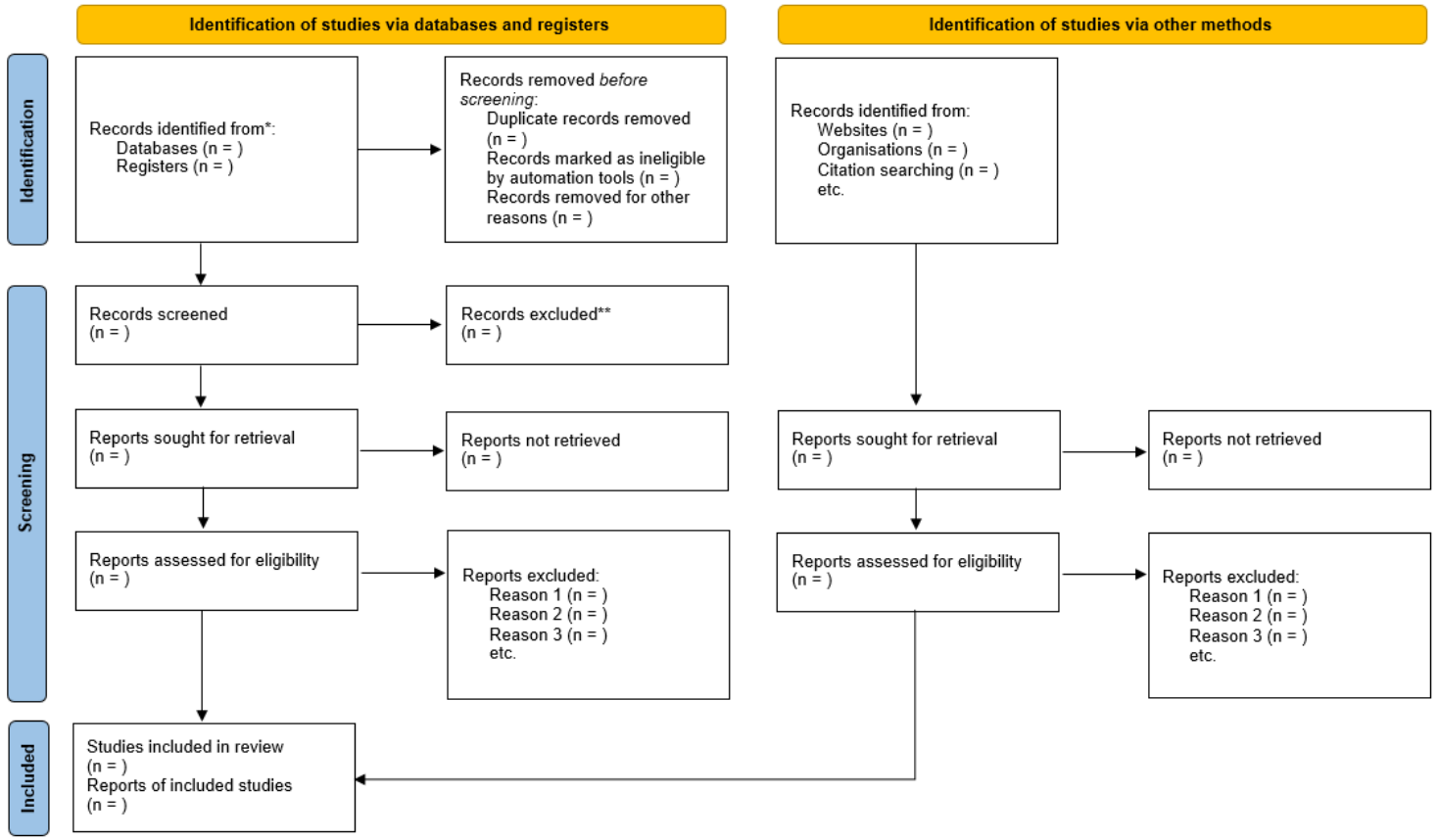


https://prisma-statement.org/



https://www.prisma-statement.org/PRISMAStatement/FlowDiagram

PRISMA 2020 flow diagram for new systematic reviews which included searches of databases, registers and other sources



*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).
**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: http://www.prisma-statement.org/

PRISMA Flow Diagram | Home | Create flow diagram | Privacy & Impact

Systematic reviews should be described in a high degree of methodological detail. The PRISMA Statement calls for a high level of reporting detail in systematic reviews and meta-analyses. An integral part of the methodological description of a review is a flow diagram.

This tool allows you to produce a flow diagram for your own review that conforms to the PRISMA2020 Statement. You can provide the numbers in the data entry section of the 'Create flow diagram' tab. Alternatively, to allow for more customisation, you can use the template file below.

This tool also allows you to download an interactive HTML version of the plot, alongside several other common formats.

We also provide an R package: PRISMA2020 flow diagram R package on Github.

Please let us know if you have any feedback or if you encounter an error by creating an issue on GitHub

Download the template CSV file

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Please cite as:
Haddaway, N. R., Page, M. J., Pritchard, C. C., & McGuinness, L. A. (2022). PRISMA2020: An R package and Shiny app for producing PRISMA 2020-compliant flow diagrams, with interactivity for optimised digital transparency and Open Synthesis Campbell Systematic Reviews, 18, e1230. https://doi.org/10.1002/cl2.1230
Download citation (.ris)

Credits:
Neal R Haddaway (creator, author)
Luke A McGuinness (coder, author)
Chris C Pritchard (coder, author)
Matthew J Page (advisor)
Jack Wasey (advisor)

Created November 2020, Updated June 2022

Main options

Previous studies: Not included

Other searches for studies: Included

Individual databases: Not included

Individual registers: Not included

Click to reset

Identification

Databases: 0

Registers: 0

Websites: 0

Organisations: 0

Citations: 0

Duplicates removed: 0

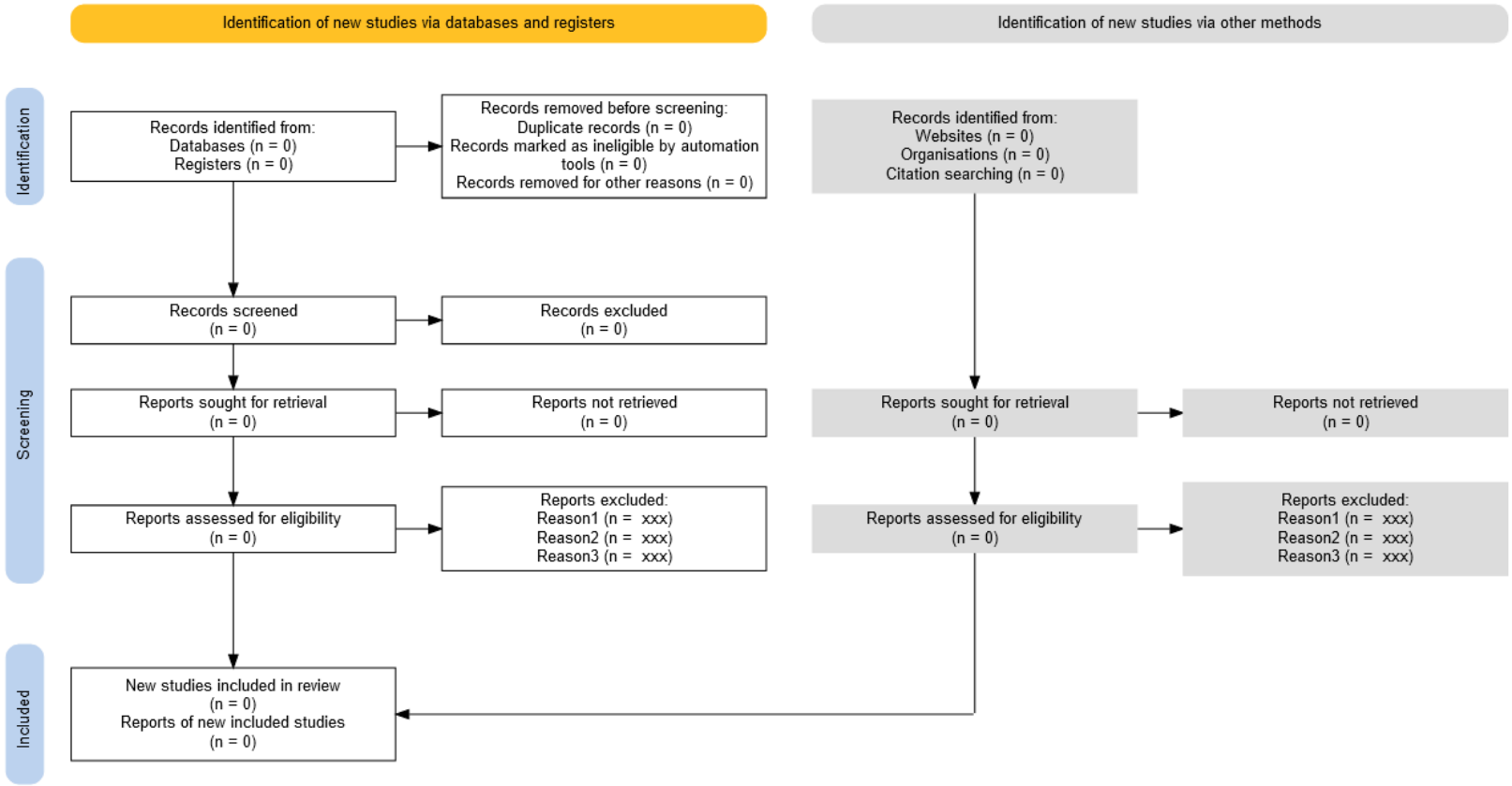
Automatically excluded: 0

Other exclusions: 0

Screening

Records screened

Records excluded



https://estech.shinyapps.io/prisma_flowdiagram/

PRISMA

TRANSPARENT REPORTING OF SYSTEMATIC REVIEWS AND META-ANALYSES

HOME | **PRISMA STATEMENT** | EXTENSIONS | TRANSLATIONS | PROTOCOLS | ENDORSEMENT | News

PRISMA Statement | PRISMA E&E | **Checklist** | Flow Diagram | History & Development | Funding | Citing & Using PRISMA

PRISMA Checklist

The PRISMA 2020 statement comprises a 27-item checklist addressing the introduction, methods, results and discussion sections of a systematic review report.

PRISMA 2020 Checklist (PDF) PRISMA 2020 Checklist (Word)

The checklist can also be completed using a Shiny App available at https://prisma.shinyapps.io/checklist/

An expanded checklist, which comprises an abridged version of the reporting recommendations presented in the Explanation and Elaboration paper, with references and some examples removed, is also available.

PRISMA 2020 Expanded Checklist (PDF)

For more information about citing and using PRISMA click here.

https://www.prisma-statement.org/PRISMAStatement/Checklist

PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	

Traceability of decisions : details of exclusion

At the very least: the list of excluded full-texts with the reason.
If possible, include all items and decisions at all sorting stages.

	A	B	C	D	E	F	G	H
1	**Additional File 7**							
2								
3	Inclusion/exclusion decisions at the three screening stages and extraction of rejected full-texts							
4								
5	Sordello et al. 2020							
6								
7	How to read the different columns is explained in the CodeBook sheet							

README | CodeBook | List of all articles | List of excluded fulltexts

	A	B	C	D	E	F	G	H
1	iblio_interna	biblio_pid	biblio_authors	biblio_cor	biblio_title	biblio_ye	exclusion_justif	justif_peco_details
2	31	10.1002/aqc.1015	Currey, RJC; Dawson	AQUATIC CO	Survival rates for a declining population of bottlenose dolphins in Dou	2009	PECO	E
3	39	10.1002/aqc.2416	Pleslic, G; Gospic, N	AQUATIC CO	The abundance of common bottlenose dolphins (Tursiops truncatus) in	2015	PECO	E
4	44	10.1002/aqc.2833	Braulik, GT; Kasuga,	AQUATIC CO	Cetacean rapid assessment: An approach to fill knowledge gaps and ta	2018	PECO	E
5	77	10.1002/ece3.1847	Koper, N; Leston, L;	ECOLOGY AN	Effects of ambient noise on detectability and localization of avian song	2016	PECO	P
6	78	10.1002/ece3.2335	Vaugoyeau, M; Adri	ECOLOGY AN	Interspecific variation in the relationship between clutch size, laying da	2016	PECO	E
7	84	10.1002/ece3.2699	Donovan, CR; Harris	ECOLOGY AN	A simulation approach to assessing environmental risk of sound expos	2017	PECO	E
8	94	10.1002/ecs2.1905	Wang, JW; Poh, CH;	ECOSPHERE	Building biodiversity: drivers of bird and butterfly diversity on tropical u	2017	PECO	E
9	115	10.1002/JEMT.10185	Gesi, M; Lenzi, P; Fo	MICROSCOPY	Effects of loud noise exposure on mouse myocardium: A comparison wit	2002	PECO	P
10	135	10.1002/jwmg.21179	Green, AW; Aldridge	JOURNAL OF	Investigating impacts of oil and gas development on greater sage-grous	2017	PECO	E
11	159	10.1002/ps.4619	Mazzoni, V; Gordon	PEST MANAG	Design of a candidate vibrational signal for mating disruption against t	2017	PECO	E
12	173	10.1002/we.2160	Hu, CC; Albertani, R;	WIND ENERG	Wind turbine sensor array for monitoring avian and bat collisions	2018	PECO	E
13	178	10.1002/wsb.546	Rosa, P; Swider, CR;	WILDLIFE SO	Disentangling Effects of Noise from Presence of Anthropogenic Infrastru	2015	PECO	E
14	197	10.1006/anbe.1999.1278	Nelson, BS	ANIMAL BEH	Avian dependence on sound pressure level as an auditory distance cue	2000	PECO	E
15	203	10.1006/appe.1996.0015	Krebs, H; Macht, M;	APPETITE	Effects of stressful noise on eating and non-eating behavior in rats	1996	PECO	P
16	247	10.1007/978-1-4419-7311	Patricio, S	EFFECTS OF	Underwater Noise Effects From Wave Energy Devices on Marine Mamma	2012	PECO	P
17	248	10.1007/978-1-4419-7311	Wright, AJ	EFFECTS OF	Noise-Related Stress and Cumulative Impact Assessment	2012	PECO	O
18	250	10.1007/978-1-4419-7311	Breitzke, M; Bohlen	EFFECTS OF	Modeling Cumulative Sound Exposure Along a Seismic Line to Assess th	2012	PECO	P
19	257	10.1007/978-1-4419-7311	Mountain, DC; Ande	EFFECTS OF	The ESME Workbench: Simulating the Impact of Anthropogenic Sound or	2012	PECO	P
20	266	10.1007/978-1-4419-7311	Mueller-Blenkle, C;	EFFECTS OF	A Novel Field Study Setup to Investigate the Behavior of Fish Related to	2012	PECO	O
21	272	10.1007/978-1-4939-2981	Bolgan, M; Picciulin	EFFECTS OF	Is the Venice Lagoon Noisy? First Passive Listening Monitoring of the Ve	2016	PECO	E
22	282	10.1007/978-1-4939-2981	Roberts, L; Breithau	EFFECTS OF	Sensitivity of Crustaceans to Substrate-Borne Vibration	2016	PECO	E
23	286	10.1007/978-1-4939-2981	Sebastianutto, L; St	EFFECTS OF	Communicating the Issue of Underwater Noise Pollution: The Deaf as a	2016	PECO	P
24	287	10.1007/978-1-4939-2981	Sidorovskaia, NA; A	EFFECTS OF	Passive Acoustic Monitoring of the Environmental Impact of Oil Explorat	2016	PECO	E
25	304	10.1007/978-1-4939-2981	Willis, KL	EFFECTS OF	Underwater Hearing in Turtles	2016	PECO	E
26	306	10.1007/978-1-4939-2981	Zhang, XG; Guo, HG;	EFFECTS OF	Noise-Dependent Fish Distribution in Kelp Beds	2016	PECO	E
27	309	10.1007/978-1-4939-2981	Lewandowski, J; Luc	EFFECTS OF	Summary Report Panel 3: Gap Analysis from the Perspective of Animal B	2016	PECO	O
28	311	10.1007/978-1-4939-2981	Aerts, LAM; Streever	EFFECTS OF	Modeled and Measured Underwater Sound Isopleths and Implications	2016	PECO	P
29	320	10.1007/978-1-4939-2981	Eggleston, DB; Lillis	EFFECTS OF	Soundscapes and Larval Settlement: Larval Bivalve Responses to Habita	2016	PECO	E
30	345	10.1007/978-1-4939-2981	Nehls, G; Rose, A; D	EFFECTS OF	Noise Mitigation During Pile Driving Efficiently Reduces Disturbance of	2016	PECO	E
31	361	10.1007/978-3-319-25658	Jennett, C; Cognetti,	PARTICIPATO	Usability and Interaction Dimensions of Participatory Noise and Ecolog	2017	PECO	P
32	362	10.1007/978-3-319-27721	Roderick A. Suthers,	VERTEBRATE	Vertebrate Sound Production and Acoustic Communication	2016	PECO	E
33	446	10.1007/BF00614503	ROMER, H; BAILEY, W	JOURNAL OF	INSECT HEARING IN THE FIELD .3. MASKING BY NOISE	1989	PECO	E
34	454	10.1007/BF01651380	Bergen, F; Abs, M	JOURNAL FU	Etho-ecological study of the singing activity of the Blue Tit (Parus caerul	1997	Language	-
35	463	10.1007/BF02242027	Kusters, E; van Rade	ZEITSCHRIFT	On the influence of military shooting ranges on the birds of the Wadde	1998	Language	-
36	470	10.1007/BF02465629	Rheindt, FE	JOURNAL FU	The impact of roads on birds: Does song frequency play a role in determ	2003	PECO	E
37	477	10.1007/BF03160888	Holland, CC; Honea,	WETLANDS	Wetland degradation and loss in the rapidly urbanizing area of Portlan	1995	PECO	E
38	480	10.1007/s00018-015-1919	De Iriarte Rodrigue	CELLULAR AN	C-Raf deficiency leads to hearing loss and increased noise susceptibili	2015	PECO	P
39	532	10.1007/s00265-006-0188	Brumm, H; Slater, PJ	BEHAVIORAL	Ambient noise, motor fatigue, and serial redundancy in chaffinch song	2006	PECO	E
40	539	10.1007/s00265-013-1625	Penna, M; Zuniga, D	BEHAVIORAL	Strong responsiveness to noise interference in an anuran from the sout	2014	PECO	E
41	547	10.1007/s00267-001-0065	Forman, RTT; Reine	ENVIRONME	Road traffic and nearby grassland bird patterns in a suburbanizing land	2002	PECO	E

README | CodeBook | List of all articles | List of excluded fulltexts

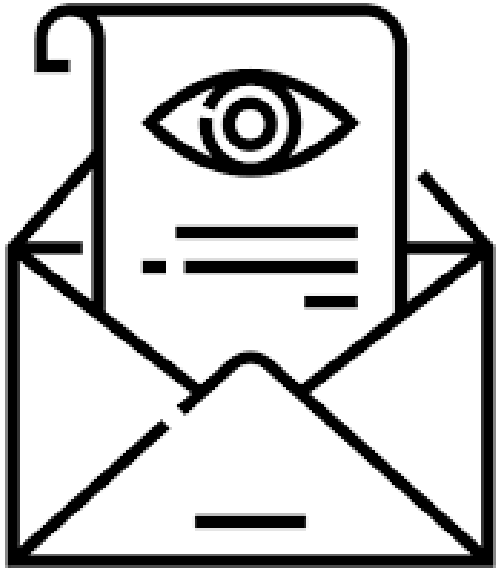
PRÊT

Traceability of decisions : details of included studies

The list of included full-texts is mandatory

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	ID_doc	Reference	Publication type	Lang.	Question addresse	Country	Region	GPS coordinate	Biological groups	LTI	LTI verge	Comparison	Study desi	Outcomes	Susceptibility to bi	Narrative synthes	Meta analysis
2	WOS_879	Anderson BS, Hunt JW, Phillips BM, Nicely PA, Vlaming V d., Connor V, et al. Integrated assessment of the impacts of agricultural drainwater in the Salinas River (California, USA). Environ Pollut. 2003;124:523–32.	Article	Eng.	Q1	United States of America	California, Salinas river	/	Benthic macroinvertebrates	Waterway	River sediments	- Upstream and downstream of the mouths of the agricultural drains	CI or CE	Abundance Species richness	Medium	Not included	Not included
3	WOS_1235	Armitage PD, Lattmann K, Kneebone N, Harris I. Bank profile and structure as determinants of macroinvertebrate assemblages - seasonal changes and management. Regul Rivers Res Manag. 2001;17:543–56.	Article	Eng.	Q1	United Kingdom	River Frome, Dorchester town	/	Macroinvertebrates	Waterway	River/water interface	- shallow vegetated bank - stepped bank - vertical earth bank - reveted bank	CI or CE	Abundance Species richness Community similarity	Medium	Not included	Not included
4	WOS_4888	Cavaillé P, Dommanget F, Daumergue N, Loucougaray G, Spiegelberger T, Tabacchi E, et al. Biodiversity assessment following a naturality gradient of riverbank protection structures in French prealps rivers. Ecol Eng. 2013;53:23–30.	Article	Eng.	Q1	France	Rhône-Alpes region	See table 1	Carabidae (Coleoptera)	Waterway	Riverbank	- Vegetal embankment - Mixed embankment (vegetal and mineral) - Mineral embankment	CI or CE	Species richness	Medium	Included	Not included
5	WOS_5114	Chapman DS, Oxford GS, Dytham C. Process from pattern in the distribution of an endangered leaf beetle. Ecography. 2009;32:259–68.	Article	Eng.	Q1	United Kingdom	England, River Ouse, York city	/	*Chrysolina graminis* (Coleoptera)	Waterway	Riverbank	- Municipal management (sown grass managed by mowing) - Cattle-grazed - Sheep-grazed	CI or CE	Patch occupancy	Medium	Not included	Not included
6	WOS_8279	Dymitryszyn I. The effect of the construction and renovation of a highway bypass in Central Poland on the carabid beetle fauna (Coleoptera: Carabidae). Eur J Entomol. 2014;111:655–662.	Article	Eng.	Q1	Poland	Kujawsko-Pomorskie province, Skępe town, main road n° 10	/	Carabidae (Coleoptera)	Road	Roadside partly covered by plants	Before and after road renovation and roadsides reconstruction (widening of the road and its shoulders, replacement of the substratum and partial paving of the shoulders)	BACI	Abundance Species richness, Shannon index Community similarity Dominance, species traits	Low	Included	Not included
7	WOS_8853	Evrard M, Micha J-C. Relation entre la diversité du substrat et la diversité faunistique dans un bief belge de la rivière Meuse. Ann Limnol - Int J Limnol. 1995;31:93–103.	Article	Fr.	Q1	Belgium	Meuse river	/	Benthic macroinvertebrates	Waterway	Riverbank	- Natural substrates banks reinforcing - Artificial substrates banks reinforcing	CI or CE	Abundance Family richness, Shannon index	Medium	Not included	Not included
8	WOS_9124	Fell PE, Warren RS, Curtis AE, Steiner EM. Short-term Effects on Macroinvertebrates and Fishes of Herbiciding and Mowing Phragmites australis-dominated Tidal Marsh. Northeast Nat. 2006;13:191–212.	Article	Eng.	Q1	United States of America	Connecticut state, New London county, Lieutenant River	41°19'30''N, 72	Macroinvertebrates	Waterway	Riparian marsh	- Untreated sites colonized with Phragmites - Treated sites: herbicide and mowing of *Phragmites australis*	CI or CE	Abundance Bray-Curtis similarity	Medium	Included	Not included
9	WOS_10923	Gollan JR, Reid CAM, Barnes PB, Wilkie L. The ratio of exotic-to-native dung beetles can indicate habitat quality in riparian restoration: Dung beetles in riparian restoration. Insect Conserv Divers. 2011;4:123–31.	Article	Eng.	Q1	Australia	Upper Hunter Valley	32°S, 151°E	Dung beetles (Coleoptera)	Waterway	Riparian habitat	- Unplanted (exotic herbs and pasture grasses) - 1–3 year old revegetated (trees and shrubs) riparian vegetation - 7–10 year old revegetated (trees and shrubs) riparian vegetation	CI or CE	Abundance Species richness Bray-Curtis similarity Ratio of the exotic-to-native beetles	Medium	Not included	Not included
10	WOS_10921	Gollan JR, Bruyn LL de, Reid N, Smith D, Wilkie L. Can ants be used as ecological indicators of restoration progress in dynamic environments? A case study in a revegetated riparian zone. Ecol Indic. 2011;11:1517–25.	Article	Eng.	Q1	Australia	New South Wales, Upper Hunter region	32°30'0''S, 151	Ants (Hymenoptera)	Waterway	Riparian vegetation	- Riparian unplanted grassland - Riparian young revegetation - Riparian older revegetation	CI or CE	Abundance Species richness Bray-Curtis similarity, functionnal groups dissimilarity	Medium	Included	Not included
11	ZR_12929	Gonseth Y. Rhopalocères et structure du paysage. La faune des lépidoptères diurnes (Rhopalocera) des talus routiers et ferroviaires du Jura neuchâtelois. Université de Neuchâtel; 1996. http://doc.rero.ch/record/5267.	PhD thesis	Fr.	Q1	Switzerland	Jura mountains of Neuchatel	/	Butterflies (Lepidoptera)	Road and railway	Embankment	- Mowing - Grazing - No management	CI or CE	Species richness, Shannon index, Hill index Community composition, species traits	Medium	Not included	Not included
12	ZR_3357	Greenwood MT, Bickerton MA, Castella E, Large AR, Petts GE. The use of coleoptera (arthropoda: insecta) for floodplain characterization on the River Trent, UK. Regul Rivers Res Manag. 1991;6:321–332.	Article	Eng.	Q1	United Kingdom	England, River Trent	/	Carabidae and Staphylinidae (Coleoptera)	Waterway	Riparian habitat	Flood regulation	CI or CE	Abundance Community composition	Medium	Not included	Not included
	ZR_3421	Grzybkowska M. Development and habitat selection of chironomid	Article	Eng.	Q1	Poland	The River Widawka	Grabia: 52°31	Macrobenthos	Waterway	Channel margins	- Stream with channel enlargement	CI or CE	Density	Medium	Not	Not

A vous de jouer !
Soyez rigoureux et transparents !



Faire des revues systématiques c'est n'avoir rien à cacher….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Help with planning a systematic review

- Campbell Systematic Reviews: Policies and Guidelines (Campbell Collaboration, 2014).

https://onlinelibrary.wiley.com/pb-assets/assets/18911803/Campbell%20Policies%20and%20Guidelines%20v4-1559660867160.pdf

- Higgins, J. P. et al. Cochrane Handbook for Systematic Reviews of Interventions (John Wiley & Sons, 2019). https://training.cochrane.org/handbook

- Shea, B. J. et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. BMJ 358, j4008 (2017). https://www.bmj.com/content/358/bmj.j4008

- Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

https://www.prisma-statement.org/

- RepOrting standards for Systematic Evidence Syntheses (ROSES)

https://www.roses-reporting.com/