

Sylvie Campagne



European Institute
for Energy Research
by EDF and KIT

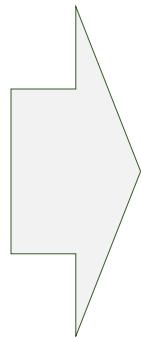
Introduction to systematic reviews

Formation FRB-CESAB 6th to 10th October 2025



Presentations' structure

- 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

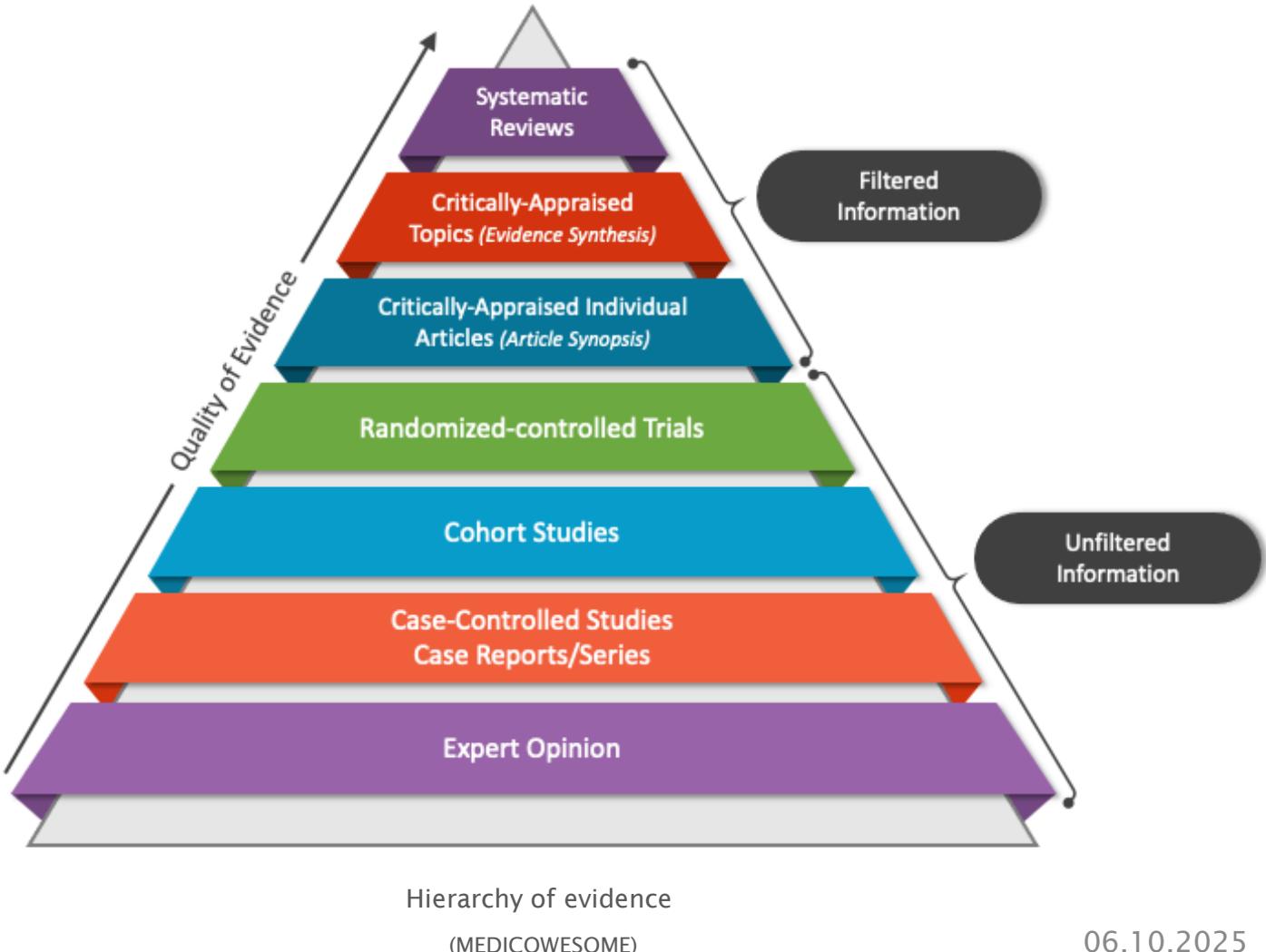
Importance des critères d'éligibilité

Le reporting

What is Evidence?

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

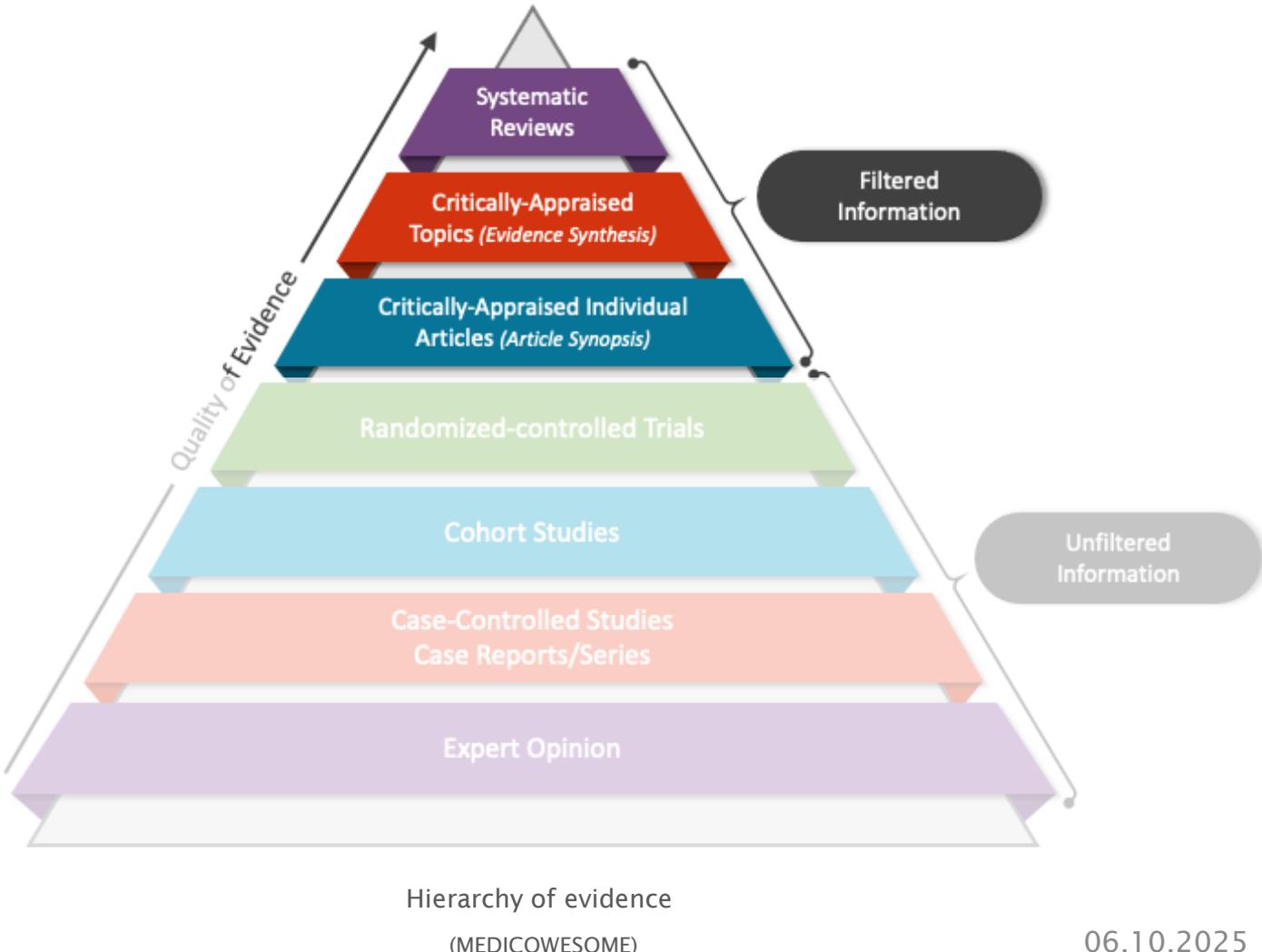
Generated by scientific studies, which are referred to as “primary” research



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

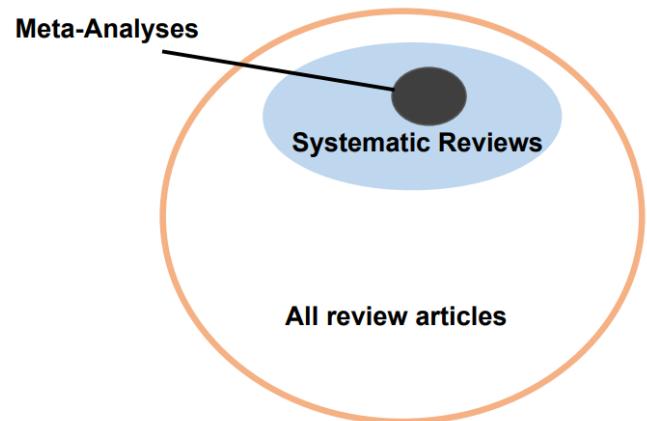


Literature review VS systematic review

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?

“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



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

Andrew S. Pullin^{1,11*} , Samantha H. Cheng², Josephine D'Urban Jackson³, Jacqualyn Eales⁴, Ida Envall⁵,
Salamatu J. Fada^{6,7}, Geoff K. Frampton⁸, Meagan Harper⁹, Andrew N. Kadykalo⁹, Christian Kohl¹⁰, Ko Konno¹¹,
Barbara Livoreil¹², Dakis-Yaoba Ouédraogo¹³, Bethan C. O'Leary^{14,15}, George Pullin¹⁶, Nicola Randall¹⁷,
Rebecca Rees¹⁸, Adrienne Smith¹⁹, Romain Sordello²⁰, Eleanor J. Sterling²¹, Will M. Twardek²² and
Paul Woodcock²³

Why is it important to develop a Protocol?

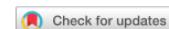
Traditional approaches to reviewing literature may be susceptible to bias and result in incorrect decisions (Haddaway *et al.* 2020).

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**



Eight problems with literature reviews and how to fix them

Neal R. Haddaway^{1,2,3}  , Alison Bethel⁴, Lynn V. Dicks^{5,6}, Julia Koricheva⁷ , Biljana Macura⁸ , Gillian Petrokofsky⁸, Andrew S. Pullin⁹, Sini Savilaakso^{10,11}  and Gavin B. Stewart^{10,12} 

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

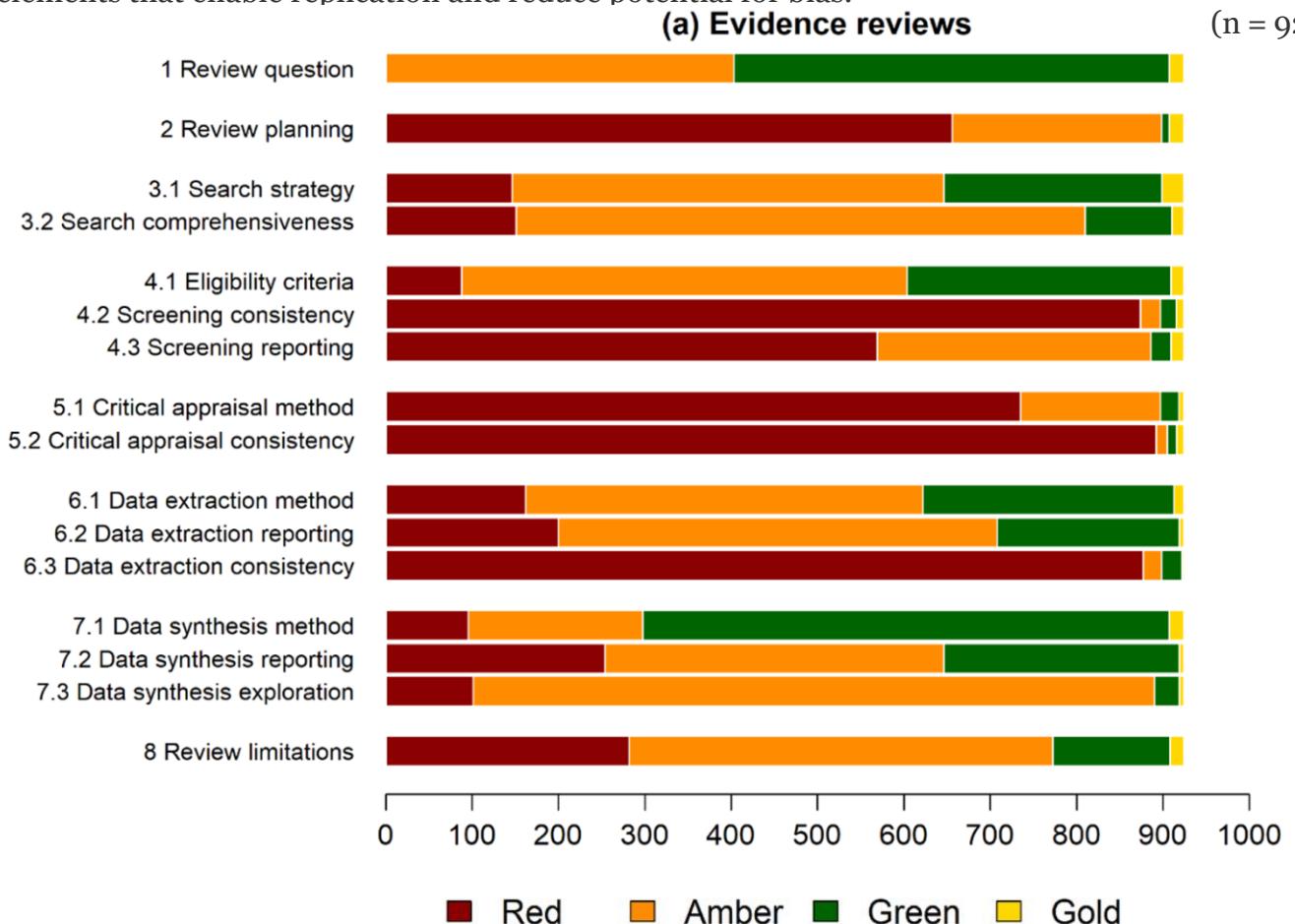
Commentary | [Open access](#) | Published: 19 April 2022

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

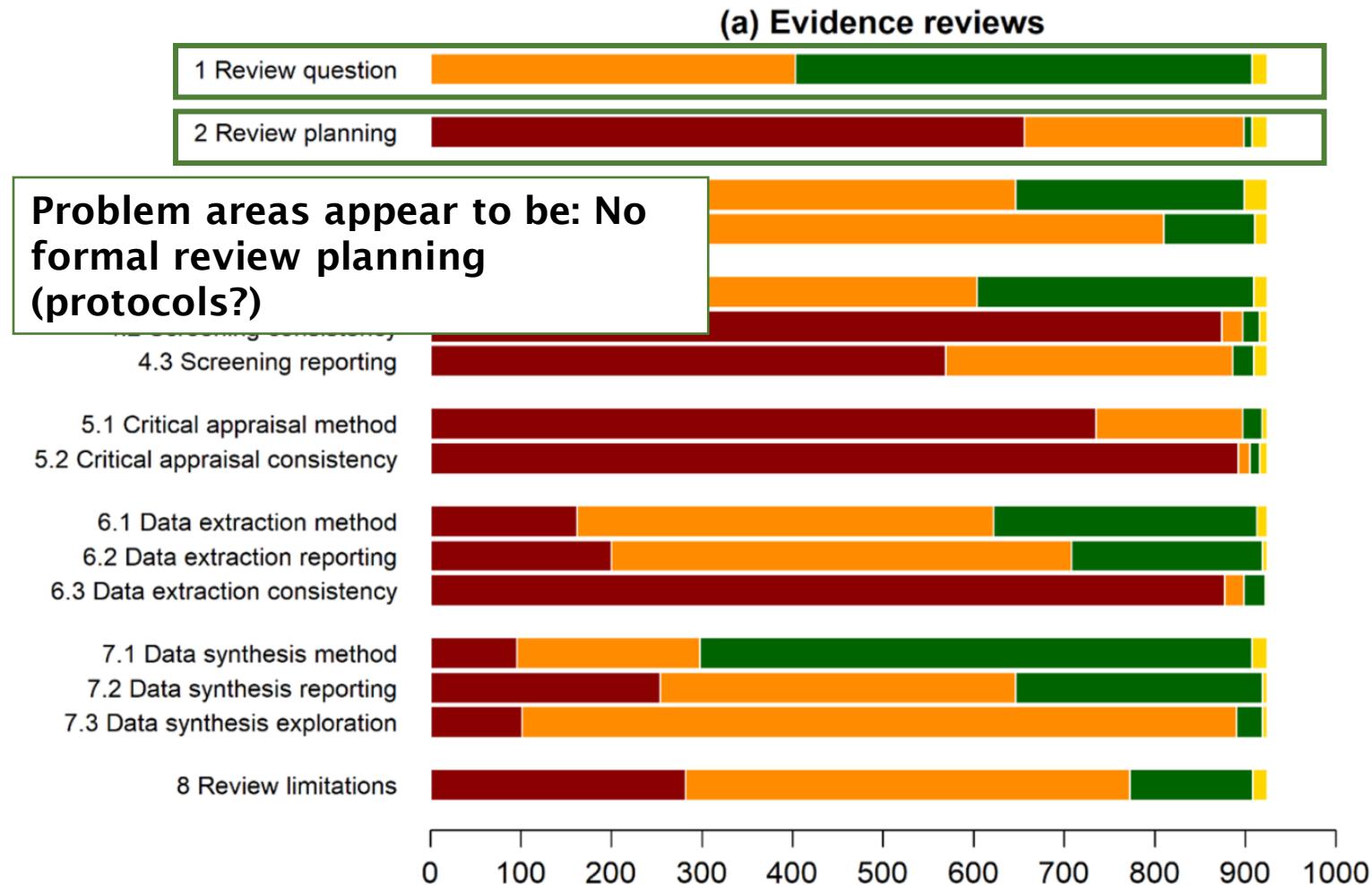
- **Gold**—The highest standards : high replicability and low potential for bias.
- **Green**—Standards that enable replication and reduce potential bias.
- **Amber**—Standards that lack **some** key elements that enable replication and reduce potential for bias.
- **Red**—Standards that lack **most**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

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](#)



Reliability and replicability of evidence reviews



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

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 subjective decisions can't be fully trusted.

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?

Guidelines and Standards for Evidence Synthesis in Environmental Management

What does the CEE say?

- A review protocol provides a **step-by-step guide** for conducting Evidence reviews.
- Develop an *a priori* protocol before starting the literature 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 other review teams **replicate the work or update a literature review** when new research becomes available.



Collaboration for
Environmental
Evidence

Section 4

Writing and registering a Protocol

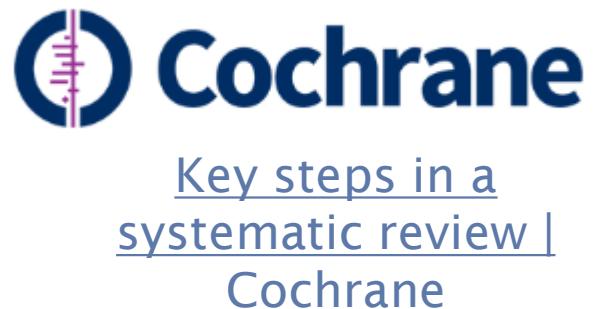
<https://environmentalevidence.org/information-for-authors/4-writing-and-registering-a-protocol/>

Why is it important to develop a Protocol?

OTHER PROTOCOLS EXIST

such as

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



**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*

Where to publish?



PROCEED – « fast-track » the protocol

Welcome to PROSPERO
International prospective register of systematic reviews

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

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/>





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-economic 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.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 concept of Biosphere Reserves was introduced in 1975 (Jaisankar, Velmurugan, & Sivaperuman, 2018) by 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 traditional



Systematic review



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

Systematic map

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

- 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?

1. Background/Purpose

2. Objectives/Review Question

3. Methods

a. Selection Criteria

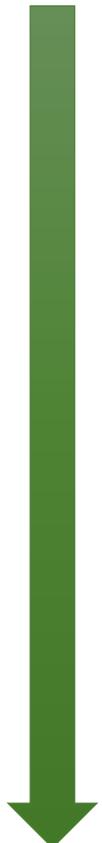
b. Search Strategy

c. Data Collection

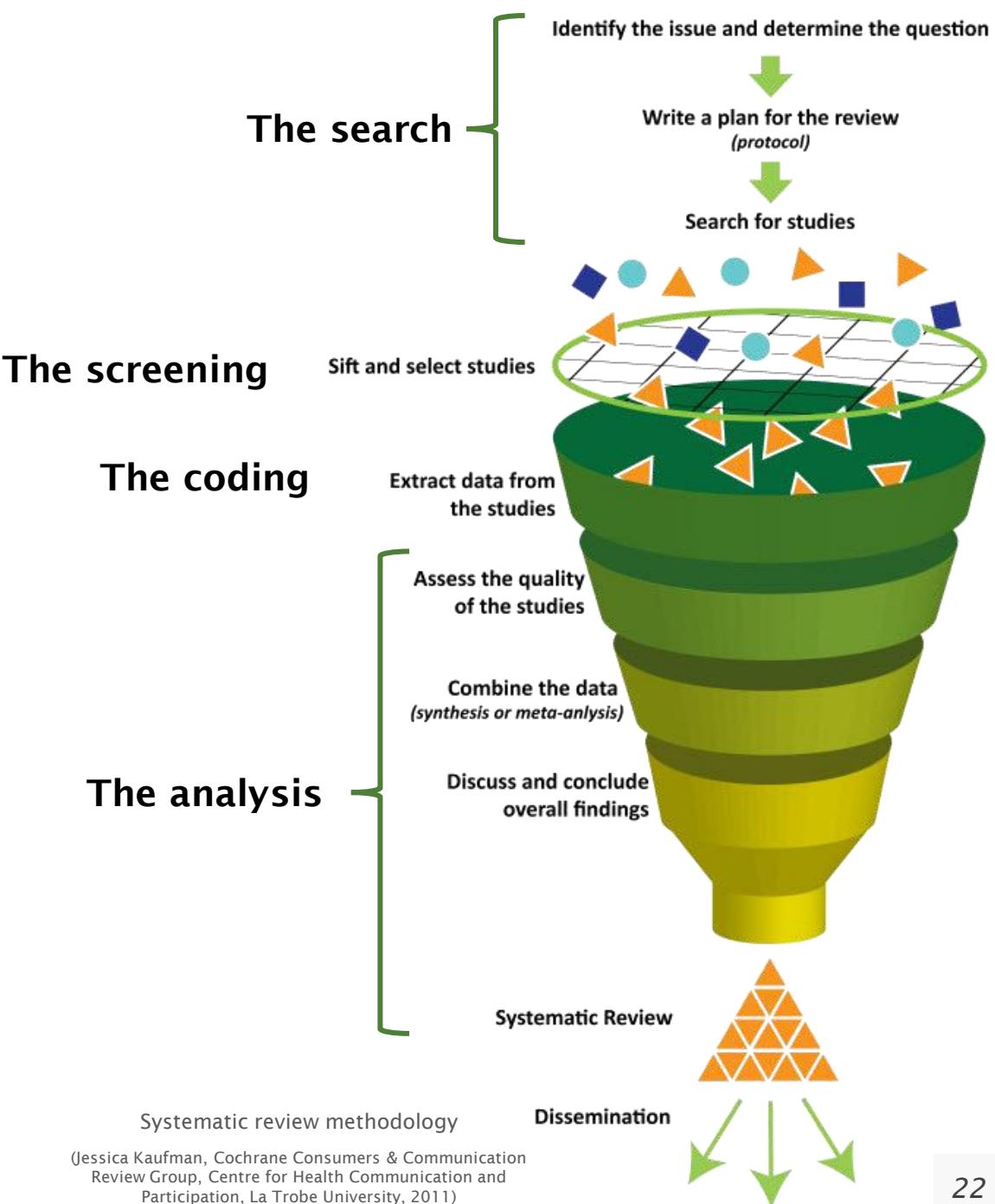
d. Displaying Data

e. Analysis and Synthesis

etc.

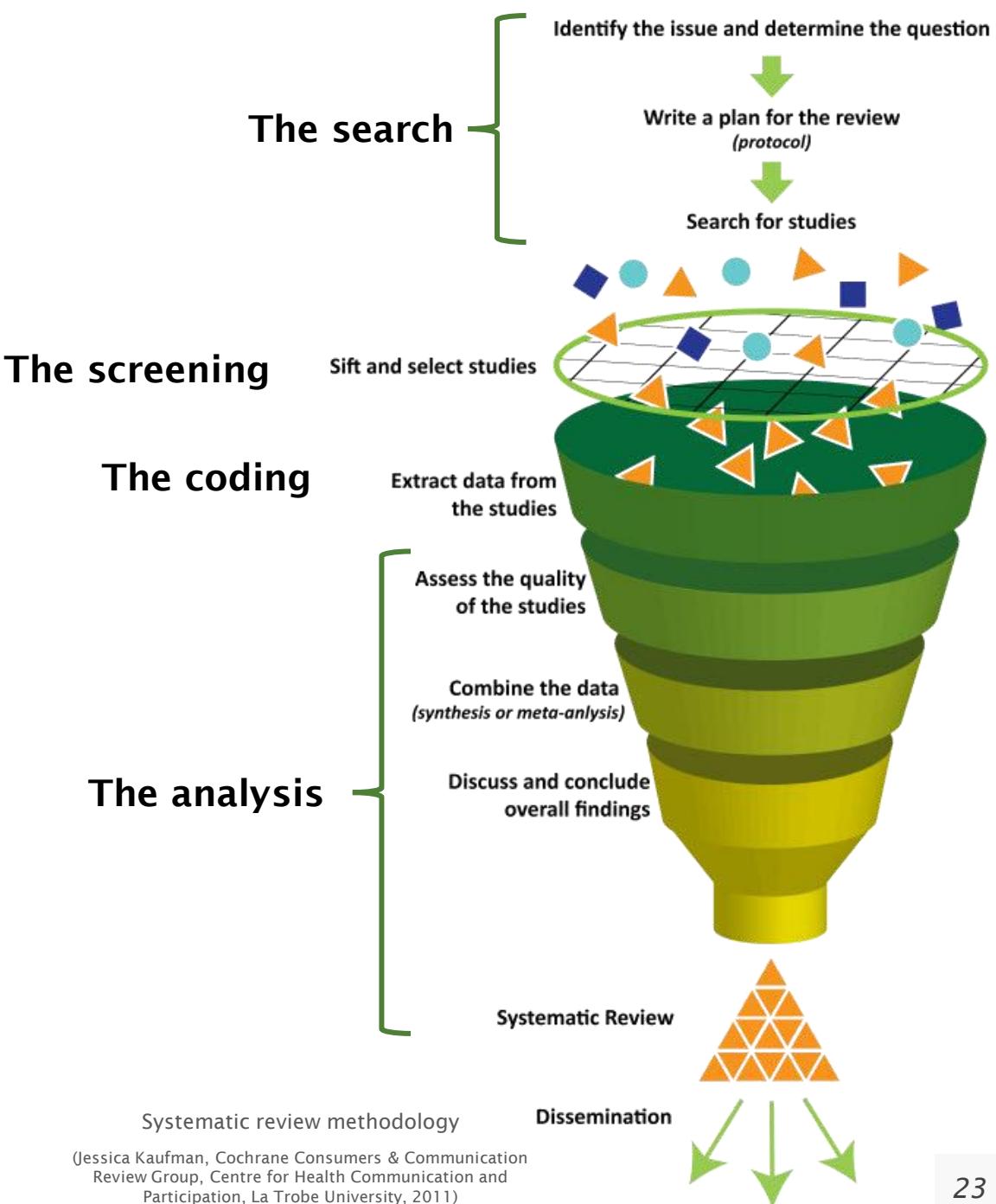
- 
- Question Formulation
 - Protocol (peer-reviewed and published)
 - Searching
 - Article Screening
 - Data Extraction
 - Critical Appraisal
 - Synthesis
 - Final Review (peer-reviewed and published)
 - Communication
- Transparency**
Repeatability
Objectivity

The methodology



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

The methodology



The protocol

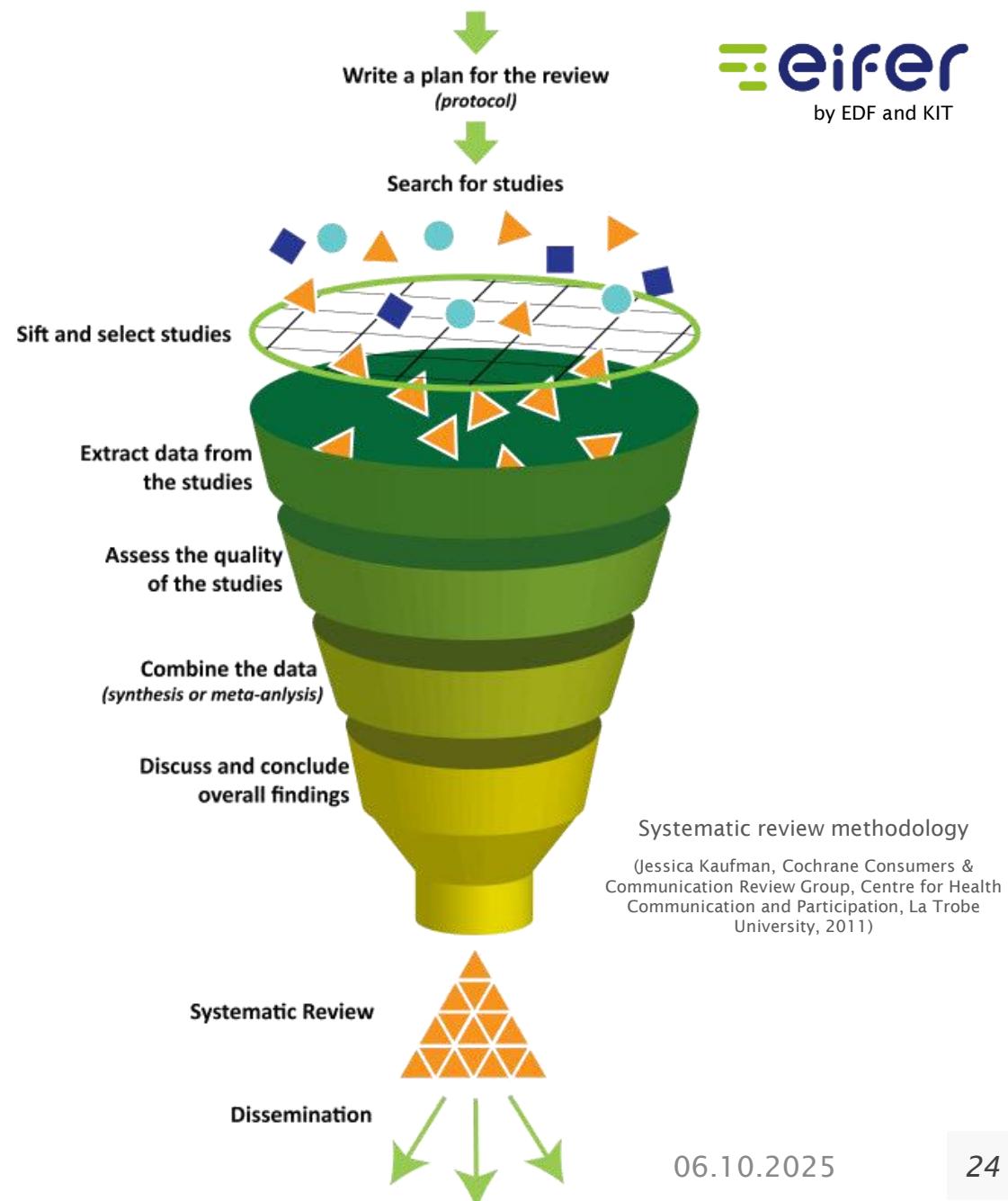
A protocol aims at objectifying the results/conclusions

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

“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)

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).

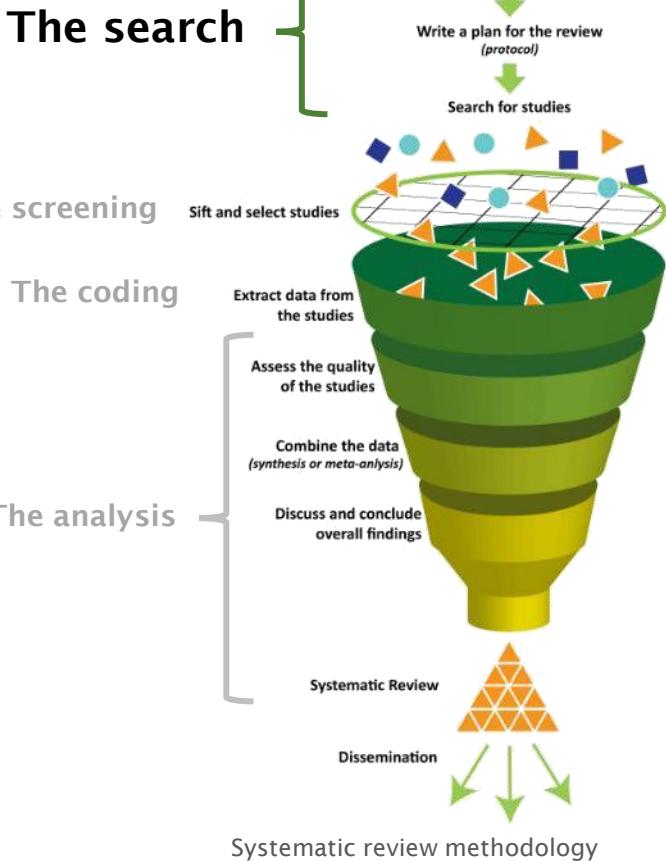
Identify the issue and determine the question



The search phase

The search phase

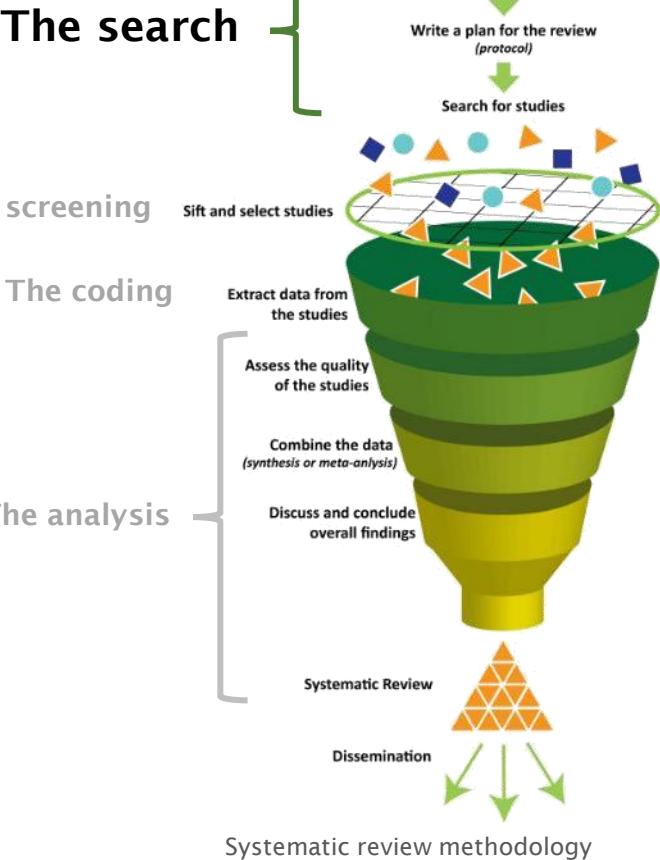
Search the references related to our subject or question



(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



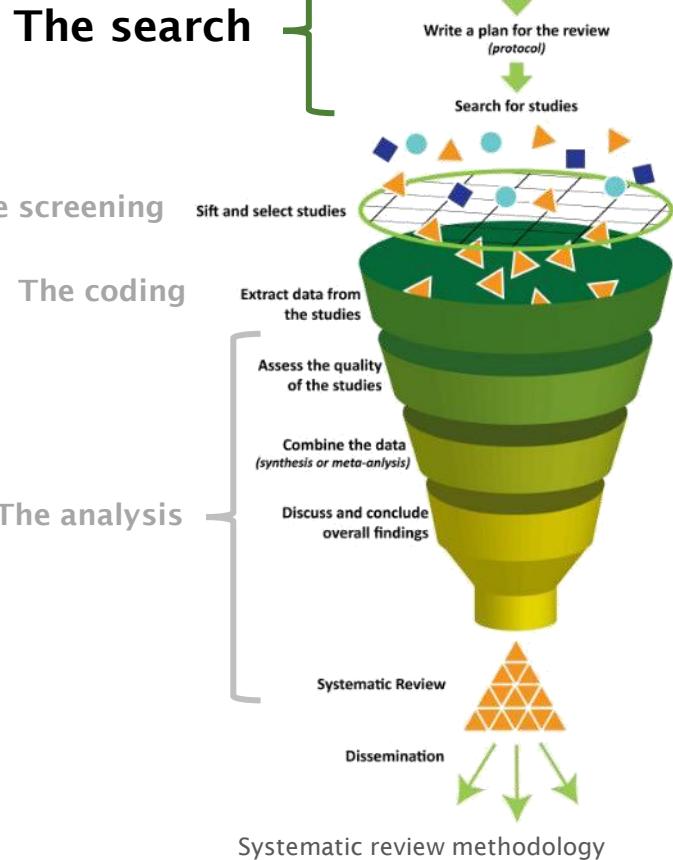
(Jessica Kaufman, Cochrane Consumers & Communication Review Group, Centre for Health Communication and Participation, La Trobe University, 2011)

The search phase : 4 steps

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

What are the ecosystem services provided by wetlands ecosystems?

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



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

The search phase : 4 steps

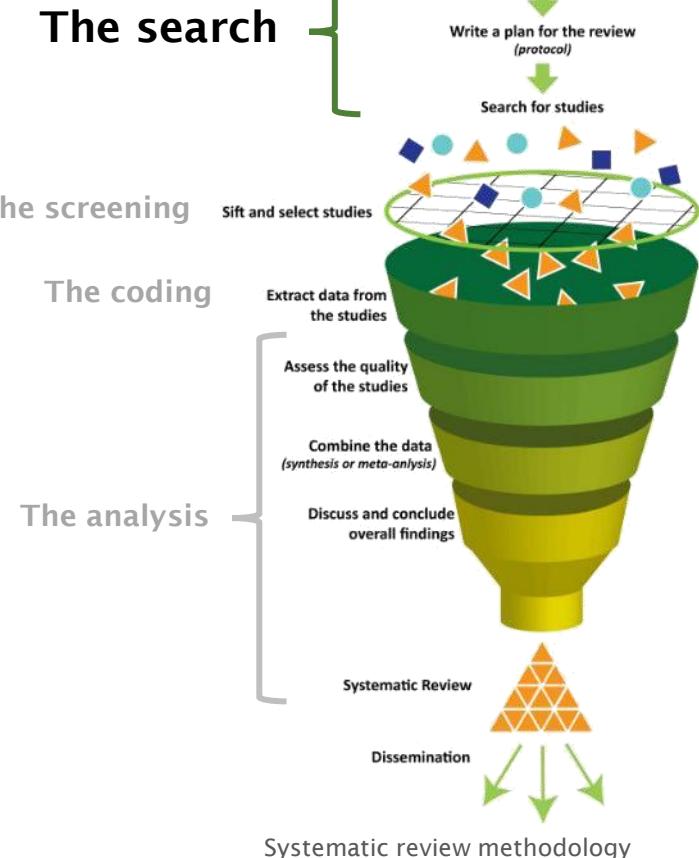
- Define the question →
- Define the search terms →
- Define the search string →
- Choose the search platform →

What are the ecosystem services provided by wetlands ecosystems?

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

TS = ((ecosystem OR environment*) AND service*))
AND TI = ("wetland" AND "peatland" AND "marsh" ...).*

*Web of Science (WoS) Core Collection
Google Scholar*



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

	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

Addressing 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

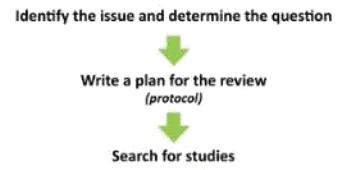
Writing the search report

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>

The search



The screening

The coding

The analysis

Systematic review methodology

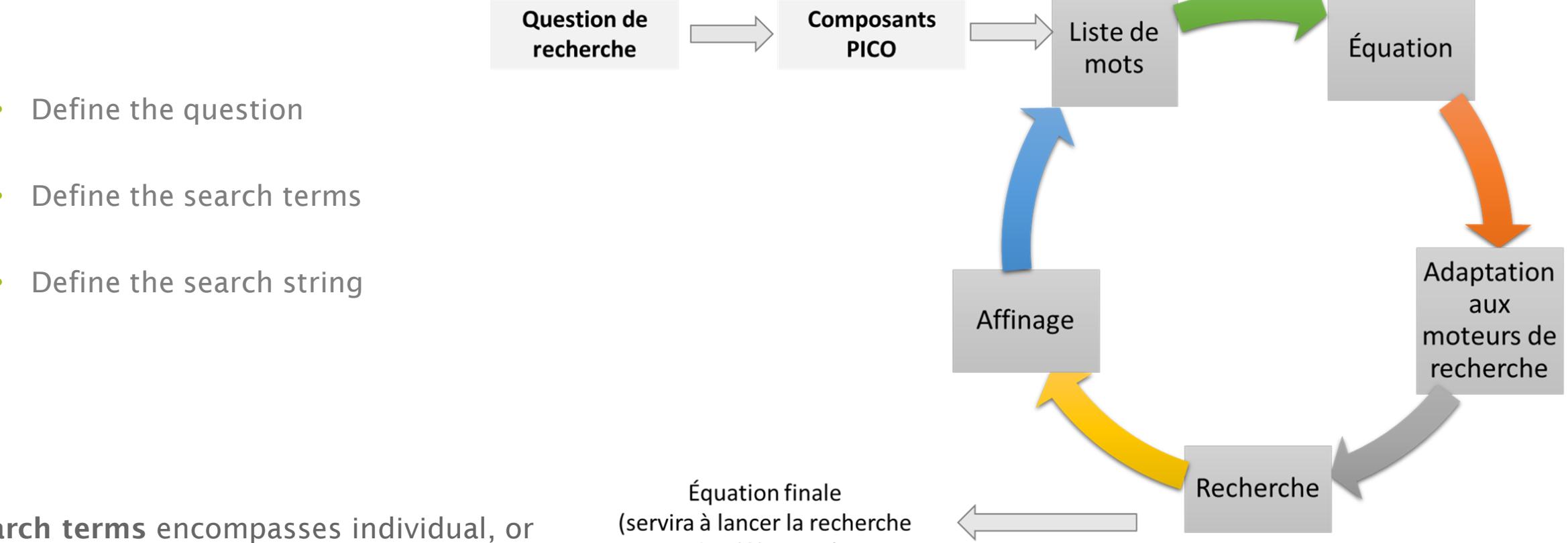
Jessica Kaufman, Cochrane Consumers & Communication Review Group, Centre for Health Communication and Participation, La Trobe University, 2011)

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)

My PICO

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?*)



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

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

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 entropy

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:
What is the effect of agricultural practices on biodiversity at the global level?

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))
```

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

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))

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**

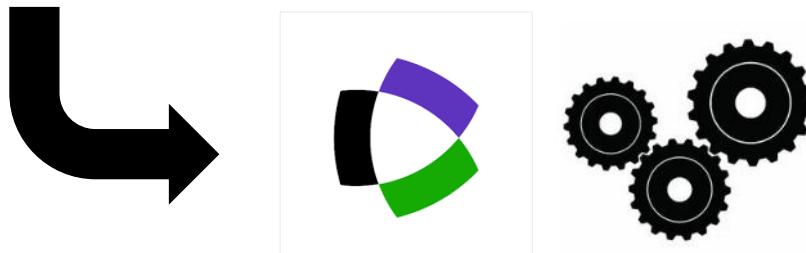
The search string

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...

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))

5

Refine the search string

Iterative process that can (must?) be long

Ex: Foo et al. (2021)

Initial search string	1	TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation") AND ("immune challeng*" OR "immunochallenge" OR "infect*")) NOT (load OR human OR people))
159 results		
Add inclusion terms	2	TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation") AND ("immune challeng*" OR "immunochallenge" OR "infect*" OR lipopolysaccharide OR lps OR phytohemagglutinin OR pha OR "sheep red blood cells" OR srbc OR implant OR vaccin*)) NOT (load OR human OR people))
4,360 results		
Edit inclusion term	3	TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation" OR "reproductive compensation" OR "reproductive fitness") AND ("immune challeng*" OR "immunochallenge" OR "infect*" OR lipopolysaccharide OR lps OR phytohemagglutinin OR pha OR "sheep red blood cells" OR srbc OR implant OR vaccin*)) NOT (load OR human OR people))
493 results		
Add inclusion terms	4	TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation" OR "reproductive compensation" OR "reproductive fitness" OR "reproductive investment") AND ("immune challeng*" OR "immunochallenge" OR "infect*" OR lipopolysaccharide OR lps OR phytohemagglutinin OR pha OR "sheep red blood cells" OR srbc OR implant OR vaccin*)) NOT (load OR human OR people))
2,489 results		
Change inclusion term	5	TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation" OR "reproductive compensation" OR "reproductive fitness" OR "reproductive investment" OR "Life History Trade-Off*" OR "life history") AND ("immune challeng*" OR "immunochallenge" OR "infect*" OR lipopolysaccharide OR lps OR phytohemagglutinin OR pha OR "sheep red blood cells" OR srbc OR implant OR vaccin*)) NOT (load OR human OR people))
1,819 results		
Delete inclusion term	6	TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation" OR "reproductive compensation" OR "reproductive fitness" OR "reproductive investment" OR "reproductive success" OR "Life History Trade-Off*" OR "trade off") AND ("immune challeng*" OR "immunochallenge" OR "infect*" OR lipopolysaccharide OR lps OR phytohemagglutinin OR pha OR "sheep red blood cells" OR srbc OR implant OR vaccin*)) NOT (load OR human OR people))
1,155 results		
Add inclusion term	7	TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation" OR "reproductive compensation" OR "reproductive fitness" OR "reproductive investment" OR "reproductive success" OR "Life History Trade-Off*" OR "Phenotypic Plasticity") AND ("immune challeng*" OR "immunochallenge" OR "infect*" OR lipopolysaccharide OR lps OR phytohemagglutinin OR pha OR "sheep red blood cells" OR srbc OR implant OR vaccin*)) NOT (load OR human OR people))
1,429 results		
Add exclusion terms	8	TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation" OR "reproductive compensation" OR "reproductive fitness" OR "reproductive investment" OR "reproductive success" OR "Life History Trade-Off*" OR "Phenotypic Plasticity") AND ("immune challeng*" OR "immunochallenge" OR "infect*" OR lipopolysaccharide OR lps OR phytohemagglutinin OR pha OR "sheep red blood cells" OR srbc OR implant OR vaccin*)) NOT (load OR human OR people OR men OR women OR infant* OR rat OR rats OR mouse OR mice OR pig* OR pork OR beef OR cattle OR sheep OR lamb* OR chicken* OR calf* OR horse*))
1,141 results		
Final search string		Pilot 100 papers to check hit rate. 6% hit rate. Continue refining.
1,567 results (~10% hit rate)		TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation" OR "reproductive compensation" OR "reproductive fitness" OR "reproductive investment" OR "reproductive success" OR "Life History Trade-Off*" OR "Phenotypic Plasticity") AND ("immune challeng*" OR "immunochallenge" OR "infect*" OR lipopolysaccharide OR lps OR phytohemagglutinin OR pha OR "sheep red blood cells" OR srbc OR implant* OR vaccin* OR nylon OR sephadex*)) NOT (load OR human OR people OR men OR women OR infant* OR rat OR rats OR mouse OR mice OR pig* OR pork OR beef OR cattle OR sheep OR lamb* OR chicken* OR calf* OR horse* OR infective*))

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))

5

Refine the search string

Iterative process that can (must?) be long

Ex: Foo et al. (2021)

41

Initial search string	1	TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation") AND ("immune challeng*" OR "immunochallenge*" OR "infect*")) NOT (load OR human OR people))
Add inclusion terms	2	TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation") AND ("immune challeng*" OR "immunochallenge*" OR "infect*" OR lipopolysaccharide OR lps OR phytohemagglutinin OR pha OR "sheep red blood cells" OR srbc OR implant OR vaccin*)) NOT (load OR human OR people))
Edit inclusion term	3	TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation" OR "reproductive compensation" OR "reproductive fitness") AND ("immune challeng*" OR "immunochallenge*" OR "infect*" OR lipopolysaccharide OR lps OR phytohemagglutinin OR pha OR "sheep red blood cells" OR srbc OR implant OR vaccin*)) NOT (load OR human OR people))
Add inclusion terms	4	TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation" OR "reproductive compensation" OR "reproductive fitness" OR "reproductive investment") AND ("immune challeng*" OR "immunochallenge*" OR "infect*" OR lipopolysaccharide OR lps OR phytohemagglutinin OR pha OR "sheep red blood cells" OR srbc OR implant OR vaccin*)) NOT (load OR human OR people))
Change inclusion term	5	TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation" OR "reproductive compensation" OR "reproductive fitness" OR "reproductive investment" OR "Life History Trade-Off*" OR "life history") AND ("immune challeng*" OR "immunochallenge*" OR "infect*" OR lipopolysaccharide OR lps OR phytohemagglutinin OR pha OR "sheep red blood cells" OR srbc OR implant OR vaccin*)) NOT (load OR human OR people))
Delete inclusion term	6	TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation" OR "reproductive compensation" OR "reproductive fitness" OR "reproductive investment" OR "reproductive success" OR "Life History Trade-Off*" OR "trade off") AND ("immune challeng*" OR "immunochallenge*" OR "infect*" OR lipopolysaccharide OR lps OR phytohemagglutinin OR pha OR "sheep red blood cells" OR srbc OR implant OR vaccin*)) NOT (load OR human OR people))
Add inclusion term	7	TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation" OR "reproductive compensation" OR "reproductive fitness" OR "reproductive investment" OR "reproductive success" OR "Life History Trade-Off*" OR "Phenotypic Plasticity") AND ("immune challeng*" OR "immunochallenge*" OR "infect*" OR lipopolysaccharide OR lps OR phytohemagglutinin OR pha OR "sheep red blood cells" OR srbc OR implant OR vaccin*)) NOT (load OR human OR people))
Add exclusion terms	8	TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation" OR "reproductive compensation" OR "reproductive fitness" OR "reproductive investment" OR "reproductive success" OR "Life History Trade-Off*" OR "Phenotypic Plasticity") AND ("immune challeng*" OR "immunochallenge*" OR "infect*" OR lipopolysaccharide OR lps OR phytohemagglutinin OR pha OR "sheep red blood cells" OR srbc OR implant OR vaccin*)) NOT (load OR human OR people OR men OR women OR infant* OR rat OR rats OR mouse OR mice OR pig* OR pork OR beef OR cattle OR sheep OR lamb* OR chicken* OR calf* OR horse*))

Pilot 100 papers to check hit rate. 6% hit rate. Continue refining.

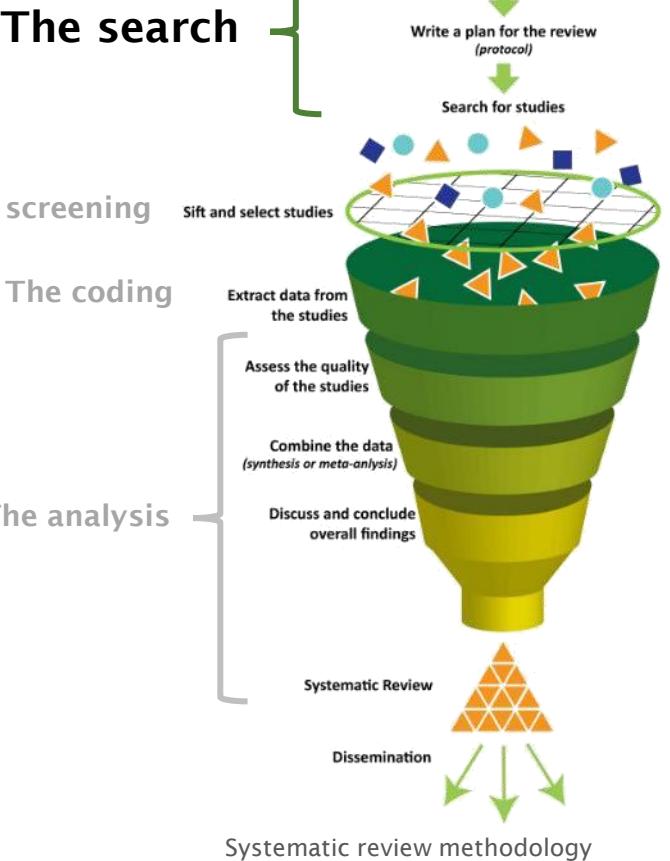
Final search string

1,567 results
(~10% hit rate)

TS = ((("terminal investment" OR "reproductive effort" OR "fecundity compensation" OR "reproductive compensation" OR "reproductive fitness" OR "reproductive investment" OR "reproductive success" OR "Life History Trade-Off*" OR "Phenotypic Plasticity") AND ("immune challeng*" OR "immunochallenge*" OR "infect*" OR lipopolysaccharide OR lps OR phytohemagglutinin OR pha OR "sheep red blood cells" OR srbc OR implant* OR vaccin* OR nylon OR sephadex)) NOT (load OR human OR people OR men OR women OR infant* OR rat OR rats OR mouse OR mice OR pig* OR pork OR beef OR cattle OR sheep OR lamb* OR chicken* OR calf* OR horse* OR infective*))

The search phase

- Choose the search platform



(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



WEB OF SCIENCE®

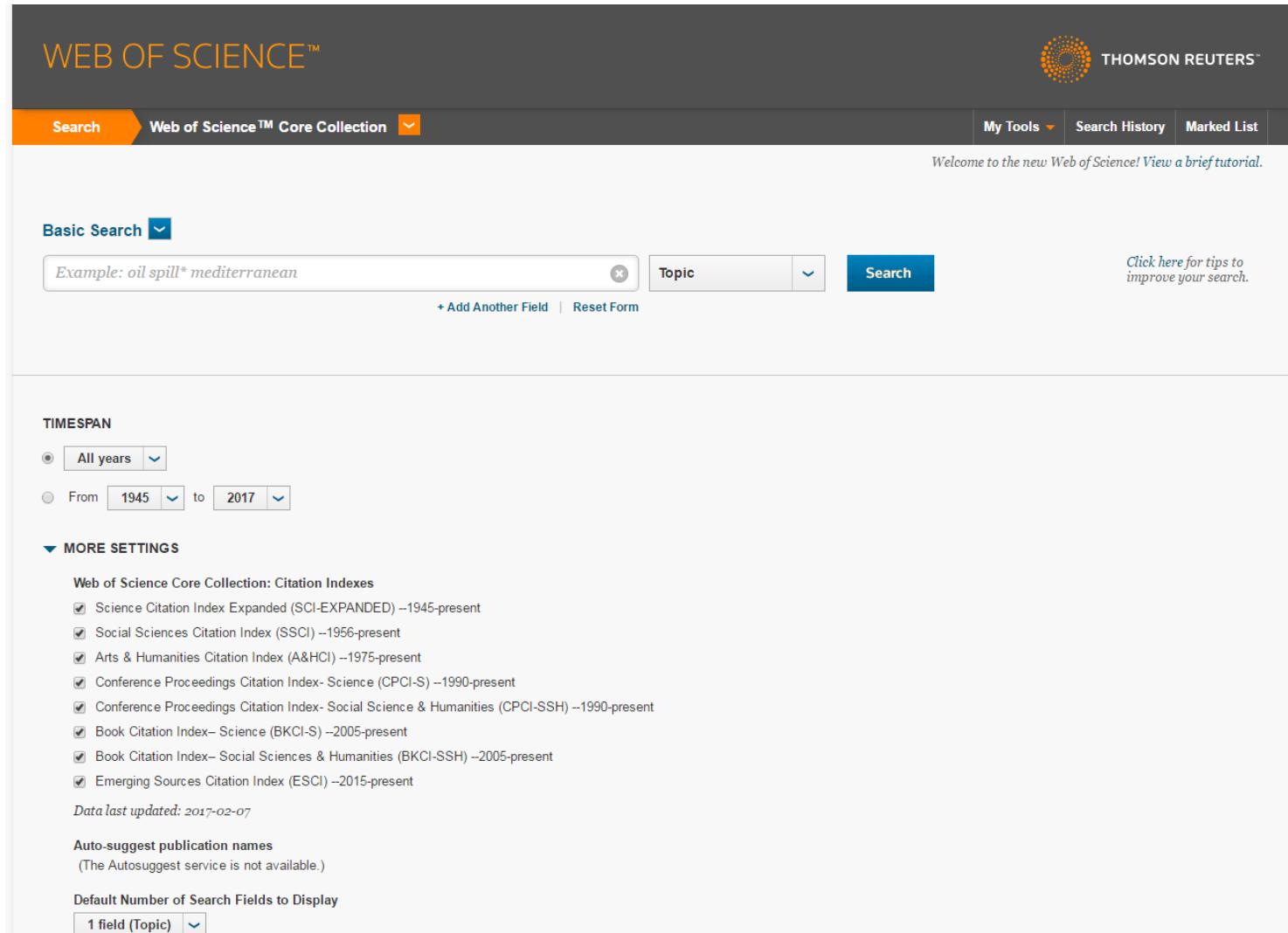


The bibliographic sources

Bibliographic databases

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

Example with web of science



WEB OF SCIENCE™

Search Web of Science™ Core Collection

My Tools Search History Marked List

Welcome to the new Web of Science! View a brief tutorial.

Basic Search 

Example: oil spill* mediterranean  Topic  Search

[Click here for tips to improve your search.](#)

+ Add Another Field | Reset Form

TIMESPAN

All years 

From 1945  to 2017 

MORE SETTINGS

Web of Science Core Collection: Citation Indexes

Science Citation Index Expanded (SCI-EXPANDED) --1945-present

Social Sciences Citation Index (SSCI) --1956-present

Arts & Humanities Citation Index (A&HCI) --1975-present

Conference Proceedings Citation Index- Science (CPCI-S) --1990-present

Conference Proceedings Citation Index- Social Science & Humanities (CPCI-SSH) --1990-present

Book Citation Index- Science (BKCI-S) --2005-present

Book Citation Index- Social Sciences & Humanities (BKCI-SSH) --2005-present

Emerging Sources Citation Index (ESCI) --2015-present

Data last updated: 2017-02-07

Auto-suggest publication names
(The Autosuggest service is not available.)

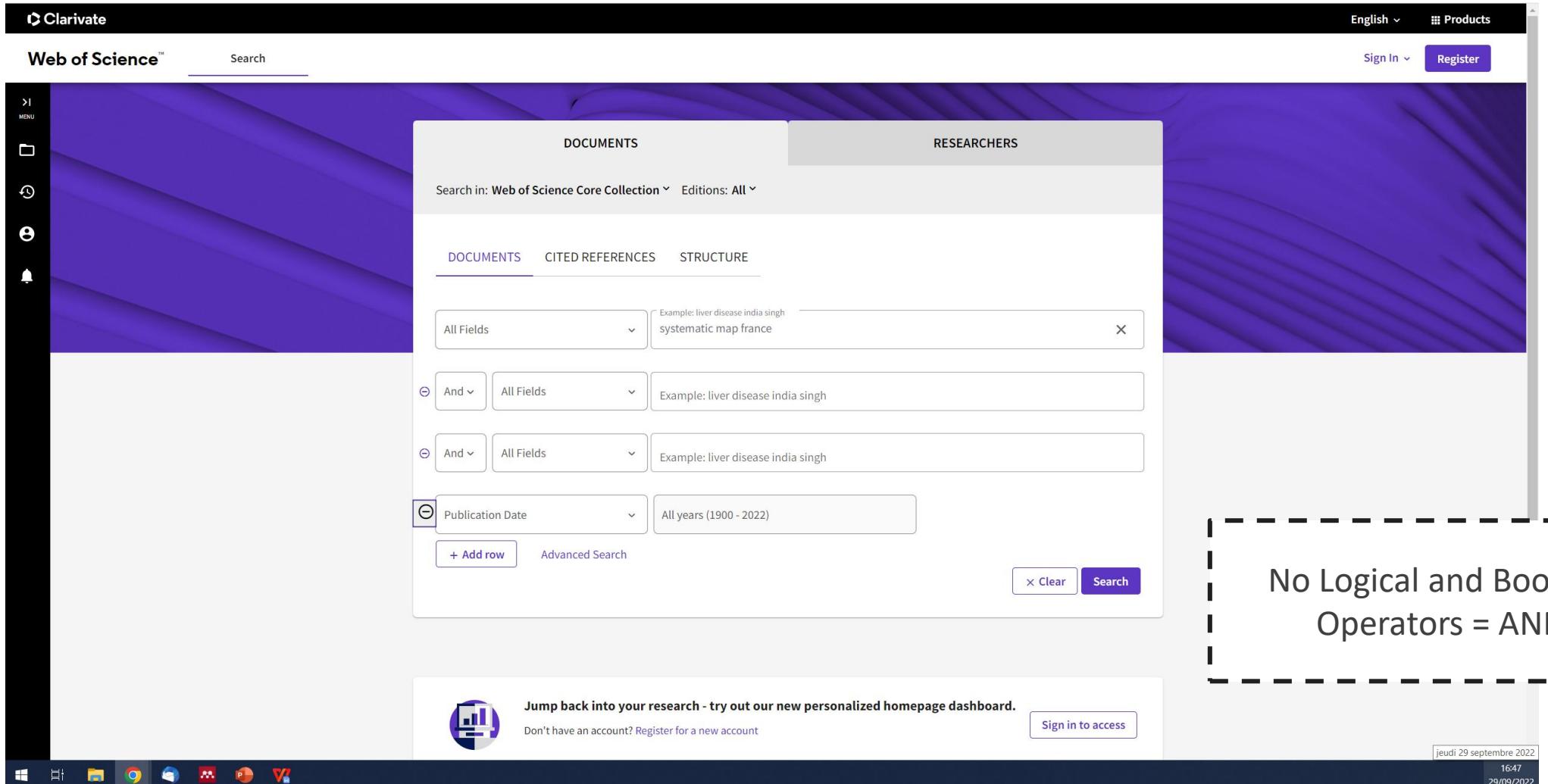
Default Number of Search Fields to Display

1 field (Topic) 

THOMSON REUTERS™

Example with web of science

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



The screenshot shows the Web of Science search interface. The search bar contains the query: "Example: liver disease india singh systematic map france". Below the search bar, there are four search rows, each with an "And" operator and an "All Fields" dropdown. The first two rows have "All Fields" selected. The third row has "Publication Date" selected with the range "All years (1900 - 2022)". At the bottom of the search interface, there is a note: "Jump back into your research - try out our new personalized homepage dashboard. Don't have an account? Register for a new account. Sign in to access".

DOCUMENTS RESEARCHERS

Search in: Web of Science Core Collection Editions: All

DOCUMENTS CITED REFERENCES STRUCTURE

All Fields Example: liver disease india singh systematic map france

And All Fields Example: liver disease india singh

And All Fields Example: liver disease india singh

Publication Date All years (1900 - 2022)

+ Add row Advanced Search

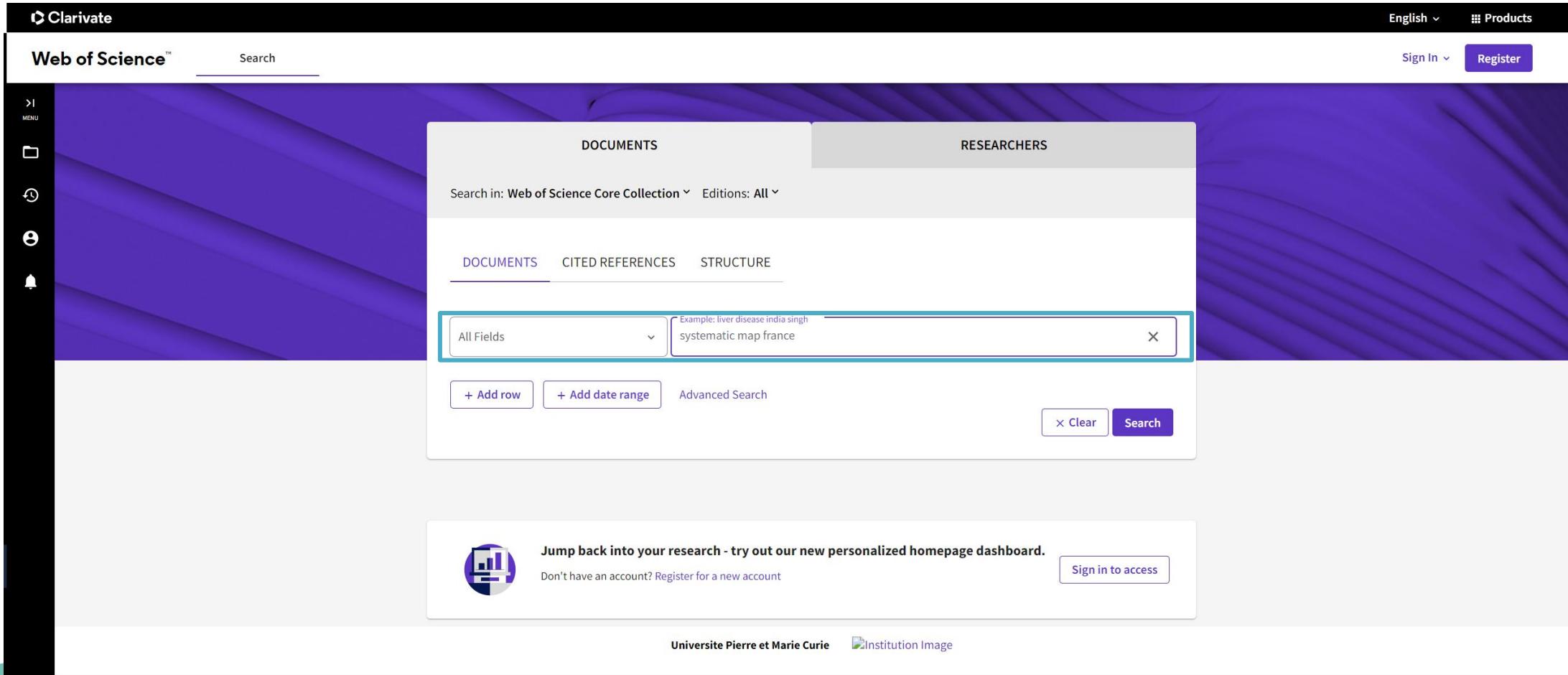
Clear Search

Jump back into your research - try out our new personalized homepage dashboard.
Don't have an account? [Register for a new account](#) [Sign in to access](#)

jeudi 29 septembre 2022 16:47 29/09/2022

No Logical and Boolean Operators = AND

Example with web of science



The screenshot shows the Web of Science search interface. At the top, there is a navigation bar with the Clarivate logo, language selection (English), product links, and sign-in/register buttons. The main search area has tabs for 'DOCUMENTS' and 'RESEARCHERS'. The search bar is set to 'All Fields' and contains the query 'systematic map france'. Below the search bar are buttons for 'Add row', 'Add date range', 'Advanced Search', 'Clear', and 'Search'. A promotional message at the bottom encourages users to try a personalized homepage dashboard, with links for 'Sign in to access' and 'Register for a new account'. The footer includes the text 'Université Pierre et Marie Curie' and 'Institution Image'.

Clarivate

Web of Science™ Search English ▾ Products

Sign In ▾ Register

DOCUMENTS RESEARCHERS

Search in: Web of Science Core Collection ▾ Editions: All ▾

DOCUMENTS CITED REFERENCES STRUCTURE

All Fields Example: liver disease india singh systematic map france

+ Add row + Add date range Advanced Search

Clear Search

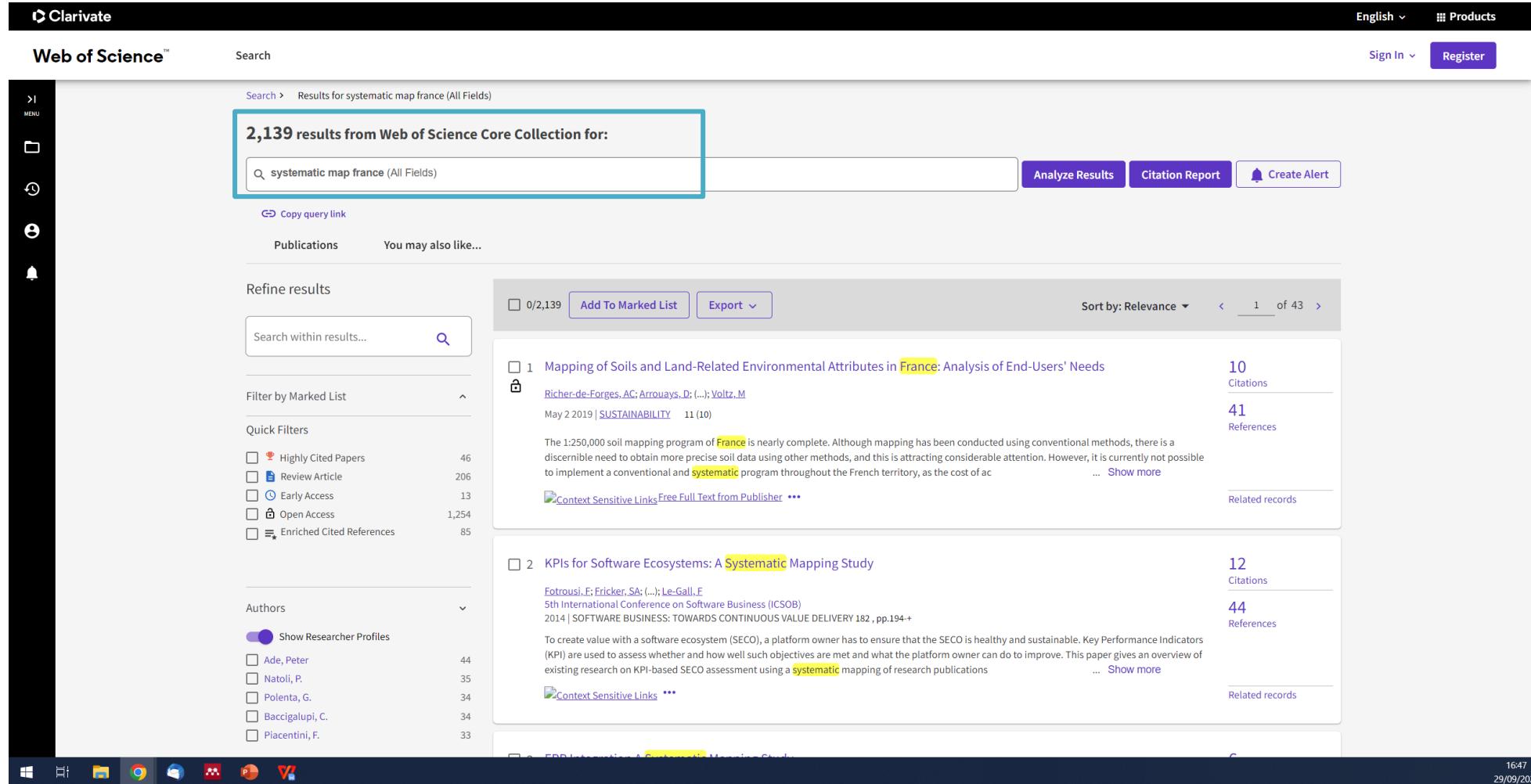
Jump back into your research - try out our new personalized homepage dashboard.

Don't have an account? [Register for a new account](#)

[Sign in to access](#)

Université Pierre et Marie Curie Institution Image

Example with web of science



Clarivate

Web of Science™

Search

English ▾ Products

Sign In ▾ Register

2,139 results from Web of Science Core Collection for:

systematic map france (All Fields)

Analyze Results Citation Report Create Alert

Copy query link

Publications You may also like...

Refine results

Search within results...

Filter by Marked List

Quick Filters

- Highly Cited Papers 46
- Review Article 206
- Early Access 13
- Open Access 1,254
- Enriched Cited References 85

Authors

Show Researcher Profiles

- Ade, Peter 44
- Natoli, P. 35
- Polenta, G. 34
- Baccigalupi, C. 34
- Piacentini, F. 33

0/2,139 Add To Marked List Export ▾

Sort by: Relevance ▾ 1 of 43

1 Mapping of Soils and Land-Related Environmental Attributes in France: Analysis of End-Users' Needs

Richer-de-Forges, A.C; Arrouays, D.; Voltz, M

May 2019 | SUSTAINABILITY 11 (10)

The 1:250,000 soil mapping program of France is nearly complete. Although mapping has been conducted using conventional methods, there is a discernible need to obtain more precise soil data using other methods, and this is attracting considerable attention. However, it is currently not possible to implement a conventional and systematic program throughout the French territory, as the cost of ac ... Show more

Context Sensitive Links Free Full Text from Publisher ...

10 Citations

41 References

2 KPIs for Software Ecosystems: A Systematic Mapping Study

Fotrousi, F; Fricker, S.A; Le-Gall, E

5th International Conference on Software Business (ICSOB)

2014 | SOFTWARE BUSINESS: TOWARDS CONTINUOUS VALUE DELIVERY 182, pp.194-+

To create value with a software ecosystem (SECO), a platform owner has to ensure that the SECO is healthy and sustainable. Key Performance Indicators (KPI) are used to assess whether and how well such objectives are met and what the platform owner can do to improve. This paper gives an overview of existing research on KPI-based SECO assessment using a systematic mapping of research publications ... Show more

Context Sensitive Links ...

12 Citations

44 References

1647 29/09/2022

Example with web of science

Clarivate

Web of Science™ Search

Results for systematic map ... Results for systematic map france (Title)

3 results from Web of Science Core Collection for:

systematic map france (Title)

Copy query link

Publications You may also like...

Refine results

Search within results...

Filter by Marked List

Quick Filters

Review Article 1

Open Access 1

Authors

Show Researcher Profiles

Bispo, Antonio 1

Saby, Nicolas P. A. 1

Moncel, Marie-Helene 1

Briand, Olivier 1

Boullo, Yves 1

See all >

Publication Years

0/3 Add To Marked List Export ▾

Sort by: Relevance ▾ 1 of 1

□ 1 Systematic surveys of a valley between Rhone and Loire Rivers (France). Mapping of the human occupation at the end of the Acheulean? 40 References

Moncel, MH; Arzarello, M and Boullo, Y Nov-dec 2017 | ANTHROPOLOGIE 121 (5), pp.428-450

Systematic surveys on the Rhins Valley, a little tributary of the Loire River (South East France), have yielded lithic assemblages for more than 20 years. The number of open-air localities totals at that moment 28. The assemblages are composed for the most of bifaces, cores, including many Levallois cores, and flakes. Although the number of pieces varies in localities, data recorded for more th ... Show more

Context Sensitive Links Full Text at Publisher ... Related records

□ 2 The Early Stage of the COVID-19 Outbreak in Tunisia, France, and Germany: A Systematic Mapping Review of the Different National Strategies 1 Citation

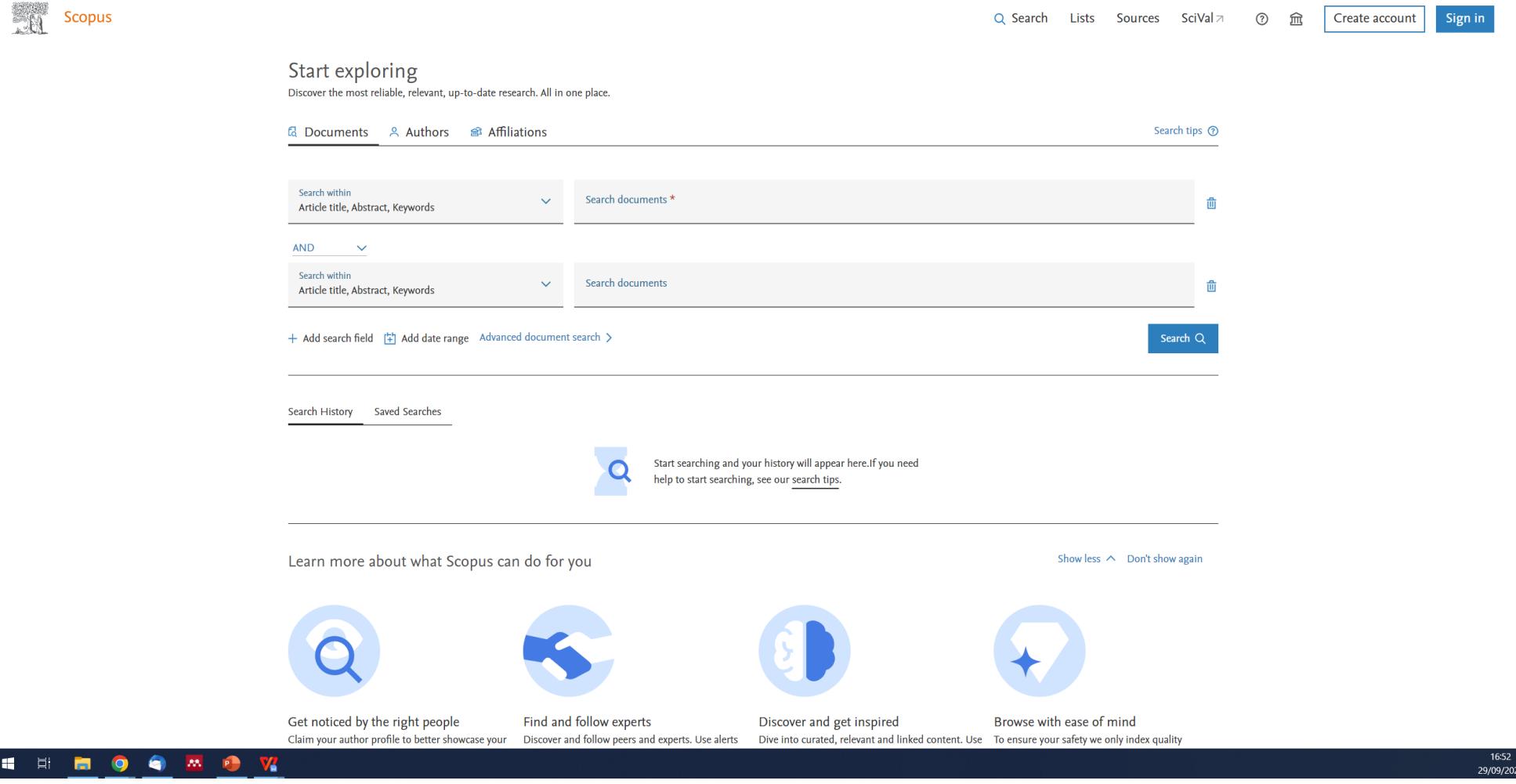
Laffet, K; Haboubi, F; (...); Rothan-Tondeur, M Aug 2021 | INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH 18 (16)

The multitude of national strategies used against the COVID-19 pandemic makes it necessary to review and synthesize them in order to identify potential gaps and shortcomings, and to help prioritize future control efforts. This systematic mapping review is aimed at identifying the coronavirus pandemic management strategies adopted by France, Tunisia, and Germany during the early stage of the COV ... Show more

Context Sensitive Links Free Full Text from Publisher ... Related records

16:50
29/09/2023

Example with Scopus



The image shows the Scopus search interface. At the top, there is a navigation bar with links for 'Search', 'Lists', 'Sources', 'SciVal', 'Help', 'Create account', and 'Sign in'. Below the navigation bar, there is a search bar with the placeholder 'Search documents *'. The search bar is divided into two sections: 'Search within Article title, Abstract, Keywords' and 'Search documents'. There is also an 'AND' operator between the two sections. Below the search bar, there are buttons for '+ Add search field', 'Add date range', and 'Advanced document search'. At the bottom of the search bar, there is a 'Search' button with a magnifying glass icon. Below the search bar, there are tabs for 'Search History' and 'Saved Searches'. A message says 'Start searching and your history will appear here. If you need help to start searching, see our [search tips](#)'. At the bottom of the page, there is a section titled 'Learn more about what Scopus can do for you' with four icons: a magnifying glass for 'Get noticed by the right people', two hands for 'Find and follow experts', a brain for 'Discover and get inspired', and a diamond for 'Browse with ease of mind'. Below each icon, there is a brief description. The bottom of the page features a dark footer bar with the Windows taskbar icons and the text '16:52 29/09/2022'.

Scopus

Start exploring

Discover the most reliable, relevant, up-to-date research. All in one place.

Documents Authors Affiliations Search tips

Search within Article title, Abstract, Keywords

Search documents *

AND

Search within Article title, Abstract, Keywords

Search documents

+ Add search field Add date range Advanced document search

Search

Search History Saved Searches

Start searching and your history will appear here. If you need help to start searching, see our [search tips](#).

Show less ▾ Don't show again

Learn more about what Scopus can do for you

Get noticed by the right people
Claim your author profile to better showcase your

Find and follow experts
Discover and follow peers and experts. Use alerts

Discover and get inspired
Dive into curated, relevant and linked content. Use

Browse with ease of mind
To ensure your safety we only index quality

16:52
29/09/2022

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

- Unfinished/published/accepted articles
- The theses
- The “uninteresting” results

How to find them?

- *Calls for evidence (social media, networks)*
- *Thesis databases (eg eThOS)*
- *Google Scholar, Google*
- *Pre-print servers (eg ArchivX)*
- *Organizational websites*

- Non-academic studies

- Technical reports
- Government documents
- Internal reports

all results not intended for academic publication

Example with Publish or Perish



Harzing's Publish or Perish (Windows GUI Edition) 8.2.3883.8074

File Edit Search View Help

My searches

Trash

Search terms	Source	Papers	Cites	Cites/year	h	g	hl,norm	hl,annual	hA	acc10
(marine OR coastal OR ocean) A...	G Google Scho...	500	132703	5529.29	155	361	92	3.83	55	278

Citation metrics [Help](#)

Publication years:
Citation years:
Papers:
Citations:
Cites/year:
Cites/paper:
Authors/paper:
h-index:
g-index:
hI,norm:
hI,annual:
hA-index:
Papers with ACC >= 1,2,5,10,20:

[Copy Results](#) ▾
[Save Results](#) ▾

Paper details [Help](#)

Select a paper in the results list (to the left of this pane) to see its details here

[Copy Paper Details](#) ▾

No search selected [Help](#)

Select an existing search to inspect or modify it, or click one of these buttons to create a new search.

Crossref*

OpenAlex*

G Google Scholar*

SC Scopus**

G Google Scholar Profile*

Semantic Scholar**

PubMed*

Web of Science***

[Import External Data...](#)

About importing external data

* Free data source
** Free registration required
*** External subscription

Cites	Per year	Rank	Authors	Title	Year	Publication	Publisher

Tools

[Preferences...](#)

[Online User's Manual](#)

[Frequently Asked Questions](#)

[Training Resources](#)

[YouTube Channel](#)

[Become a PoP Supporter](#)

Example with Publish or Perish



Harzing's Publish or Perish (Windows GUI Edition) 8.2.3883.8074

File Edit Search View Help

My searches

- Trash

Search terms	Source	Papers	Cites	Cites/year	h	g	hl, norm	hl, annual	hA	acc10
# (marine OR coastal OR ocean) A...	Google Scho...	500	132703	5529.29	155	361	92	3.83	55	278

Google Scholar search

Authors: Years: 0 - 0

Publication name: ISSN:

Title words:

Keywords: (marine OR coastal OR ocean) AND (species OR biodiversity OR ecosystem) AND "ecosystem services" AND char

Maximum number of results: 500

Tools

Preferences...
Online User's Manual
Frequently Asked Questions
Training Resources
YouTube Channel
Become a PoP Supporter

Cites	Per year	Rank	Authors	Title	Year	Publication	Publis
✓ h 184	15.33	1	SR Cooley, HL Kite...	Ocean acidification's potential to ...	2009	Oceanography	JSTOR
✓ h 417	34.75	2	H Mooney, A Larig...	Biodiversity, climate change, and e...	2009	Current opinion in ...	Elsevier
✓ h 413	19.67	3	CM Duarte	Marine biodiversity and ecosystem...	2000	Journal of experimental m...	Elsevier
✓ 51	4.64	4	KMA Chan, M Ruck...	Characterizing changes in marine ...	2010	F1000 biology reports	ncbi.nlm.nih.gov
✓ h 200	33.33	5	C Hattam, JP Atkin...	Marine ecosystem services: linking...	2015	Ecological ...	Elsevier
✓ 56	9.33	6	RK Turner, M Scha...	Coastal zones ecosystem services	2015	Valuation of Ecosystem Ser...	Springer
✓ h 272	22.67	7	SR Palumbi, PA San...	Managing for ocean biodiversity t...	2009	Frontiers in Ecology ...	Wiley
✓ h 319	29.00	8	EF Granek, S Polask...	Ecosystem services as a common l...	2010	Conservation ...	Wiley
✓ 43	21.50	9	ID Lau, CC Hicks, G...	What matters to whom, and why?	2010	Ecosystem services	Elsevier

Citation metrics [Help](#)

Publication years: 1997-2021
Citation years: 24 (1997-2021)
Papers: 500
Citations: 132703
Cites/year: 5529.29
Cites/paper: 265.41
Authors/paper: 3.65
h-index: 155
g-index: 361
hI, norm: 92
hI, annual: 3.83
hA-index: 55
Papers with ACC >= 1,2,5,10,20: 493,476,396,278,168

Paper details [Help](#)

Select a paper in the results list (to the left of this pane) to see its details here

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

The test list

Test-list : 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

Interest : 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 al. Mapping and evaluating marine p	1	oui		
10.3389/fma	Cavanagh et al. 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.eco	Cook et al. (2) Towards marine ecosystem based	6	oui		
10.5670/oce	Cooley et al. Ocean acidification's potential to	7	oui		
10.1088/174	Cooley, S.R. et al. 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 provided	14	oui		
10.1126/scie	Worm B., E.B. Impacts of biodiversity loss on oc	15	oui		
10.1016/j.occ	Kermagoret, H. How does eutrophication impact	16	oui		
10.17159/saj	Arabi, S., Nahm, S. Impacts of marine plastic on ecos	17	oui		
10.2307/234	Depellegrin, I. Integrating ecosystem service val	18	oui		
10.1016/j.eco	Broszeit, S., E. 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, J. Ocean acidification impacts on co	21	oui		
10.1016/j.ma	Potts, T., Burke, T. Do marine protected areas deli	22	oui		
10.1016/j.jen	Lemasson, A. Linking the biological impacts of c	23	oui		
10.3389/fma	Pouso, S., Boero, F. An Interdisciplinary Approach for	24	oui		
10.1016/j.occ	Song, J., Zhai, Y. Changes in ecosystem services va	25	oui		
10.1016/j.en	Yim, J., Kwon, S. 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, S. 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

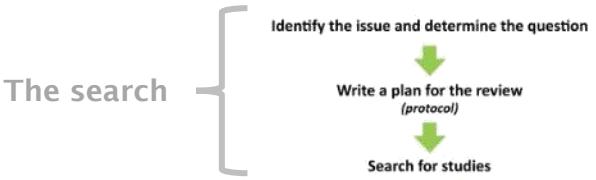
- ***Miss-rate*** : thanks to the test-list, must be minimized
- ***Hit-rate*** : Percentage of relevant articles, calculated on a sample
(for example, on 100 randomly selected results)
→ aim for at least 10%
- ***Number of results*** : Aim for between 1000 and 3000.

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.



The screening

The coding

The analysis



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

The screening phase

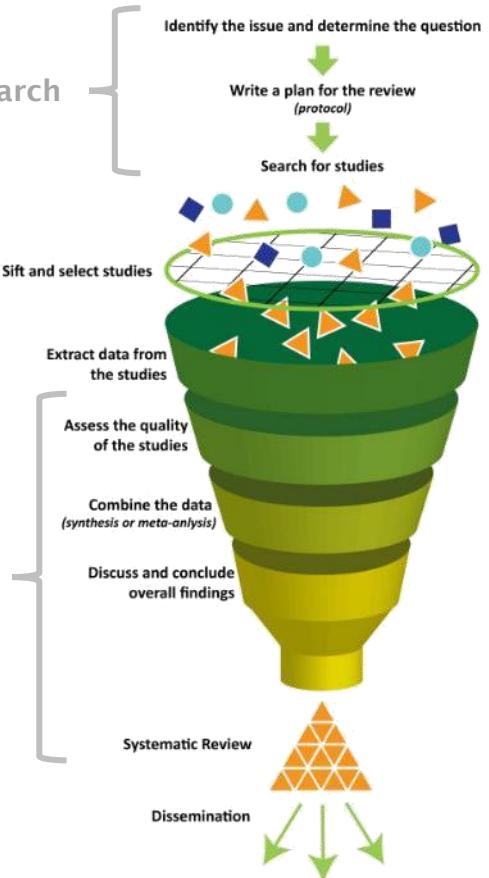
Select the references related to our topic or question from the references found during the research phase

1. The different screening stages
2. Inclusion and exclusion criteria
3. Existing tools for managing screening
4. Statistical tests between raters (kappa test)

- Check for duplicates
- Title / Abstract screening
- Full text searching
- Full text screening

The screening

The search



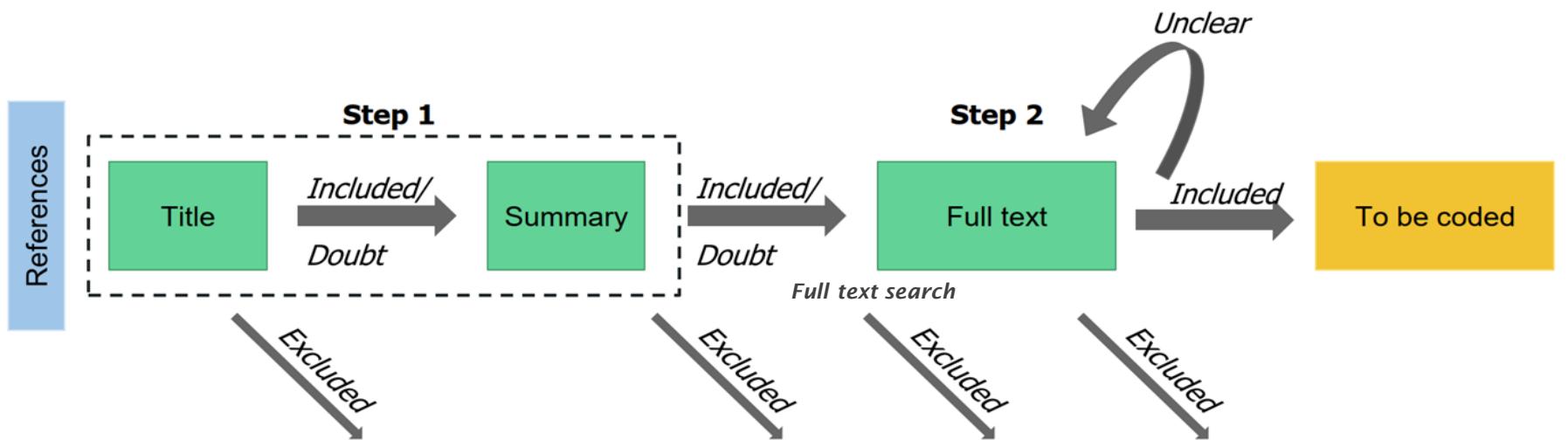
Systematic review methodology

(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



The screening

The coding

The analysis

Sift and select studies

Extract data from the studies

Assess the quality of the studies

Combine the data (synthesis or meta-analysis)

Discuss and conclude overall findings

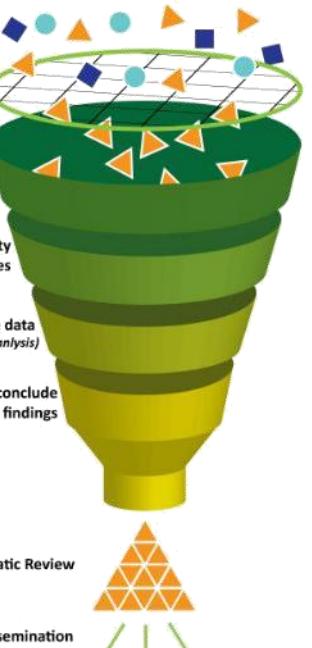
Systematic Review

Dissemination

Systematic review methodology

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

Identify the issue and determine the question
Write a plan for the review (protocol)
Search for studies

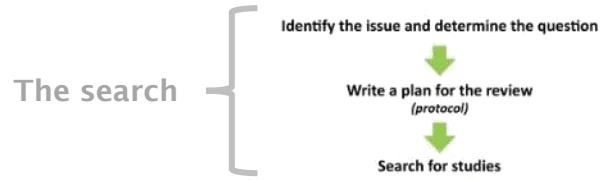


The screening phase

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

- Title / Abstract screening
- Full text screening

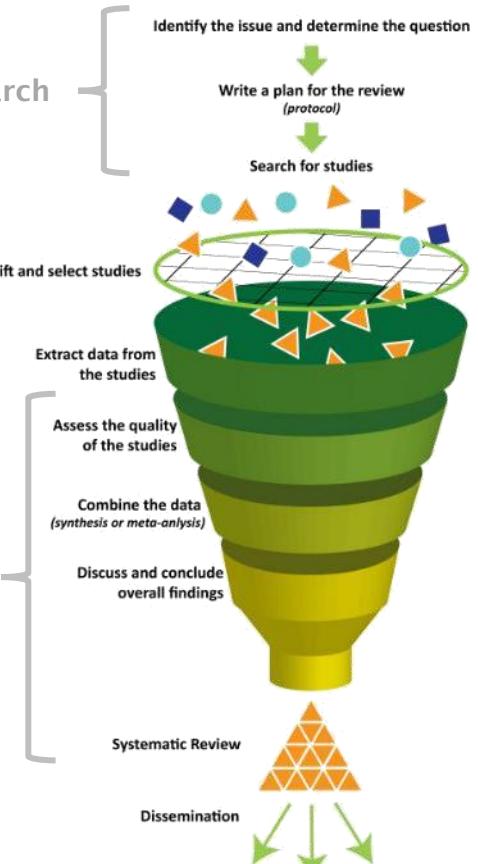
Inclusion and exclusion criteria



The screening

The coding

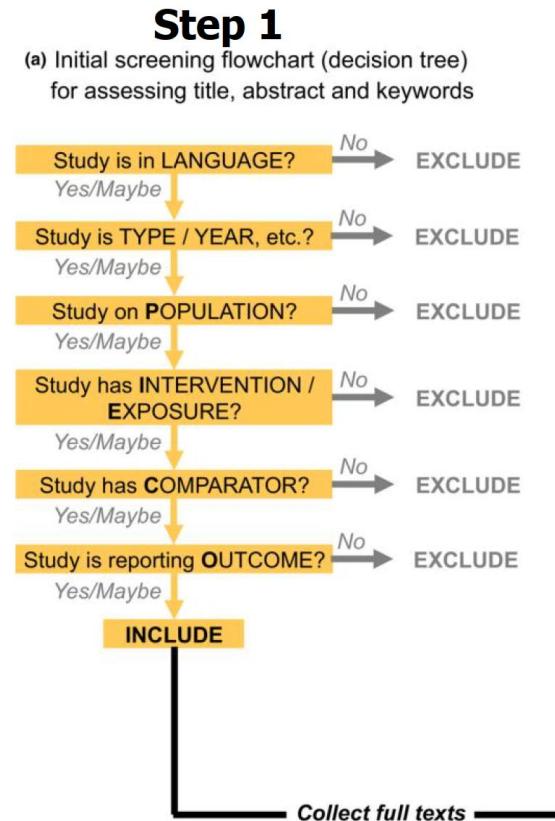
The analysis



(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)

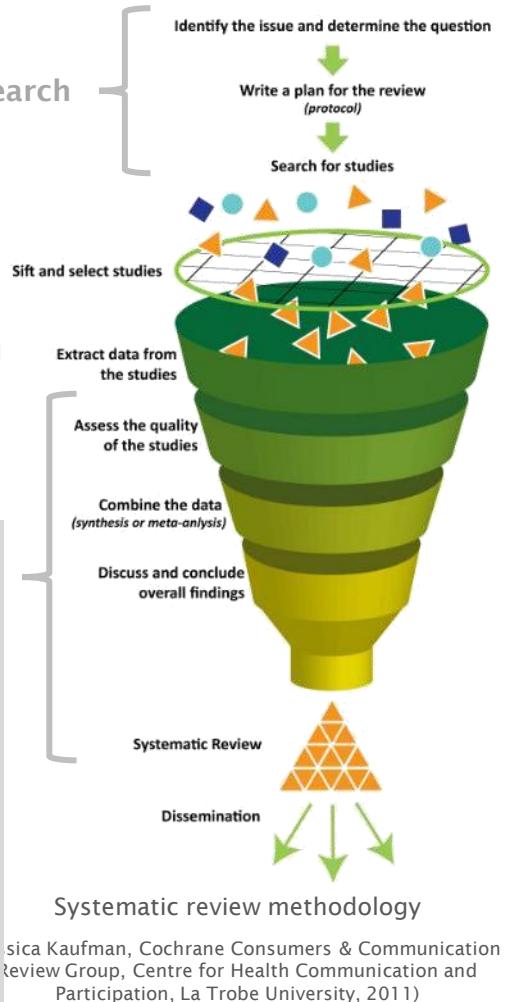
The screening

The coding

Ideally, at each stage :

- 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

SORTING



The screening phase

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 20 th century and/or the 21 st 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

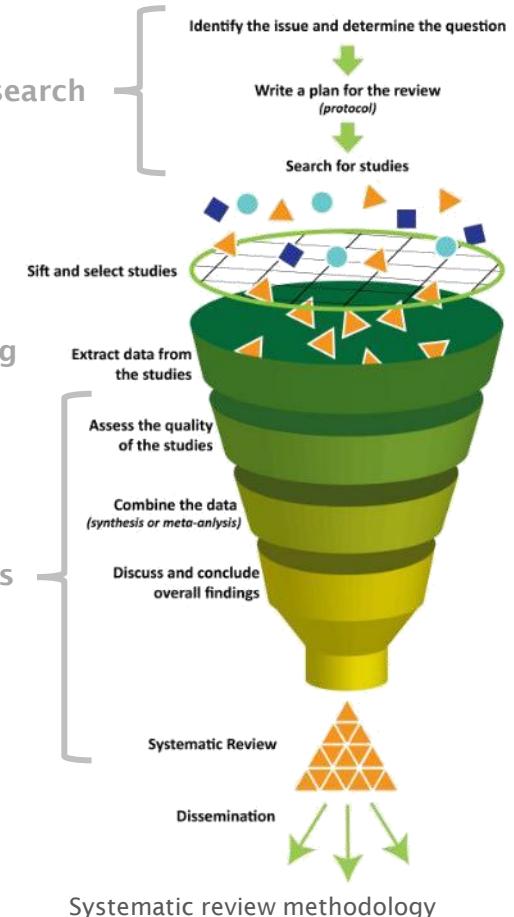
Screening steps	Criteria	Inclusion criteria	Exclusion criteria
Title	Ecosystem service	<i>Study assessing any ecosystem service (as well as related terms of ES like "nature contributions to people") no matter the types of values</i>	<i>Study on the ecological structure, process or function of the desert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

- ✓ 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

The screening

The coding

The analysis



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

Excel Microsoft / WPI / Office - free

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

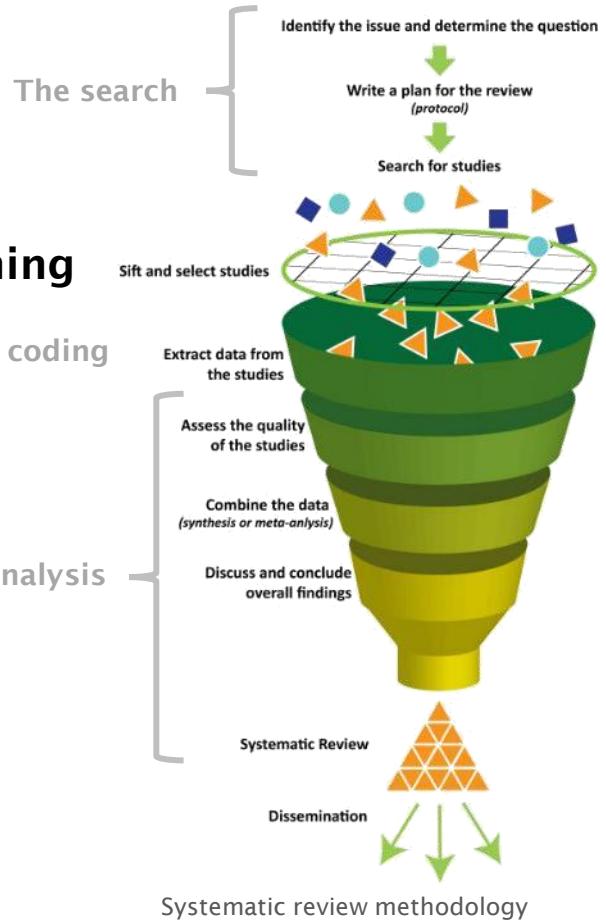


No. of articles	Article title	Sort by title	Abstract sorting	Pdf found	Sort entire text
23	Evaluation of	Yes	NO	-	-
24	Ecosystem...	NO	-	-	-
2X	Mapping...	Yes	Yes	Yes	No

The screening

The coding

The analysis



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

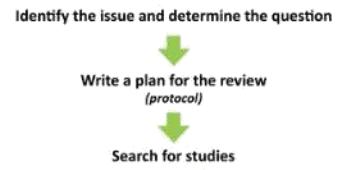
The screening phase

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

The search



The screening

The coding

The analysis

Sift and select studies

Extract data from the studies

Assess the quality of the studies

Combine the data (synthesis or meta-analysis)

Discuss and conclude overall findings



Systematic review methodology

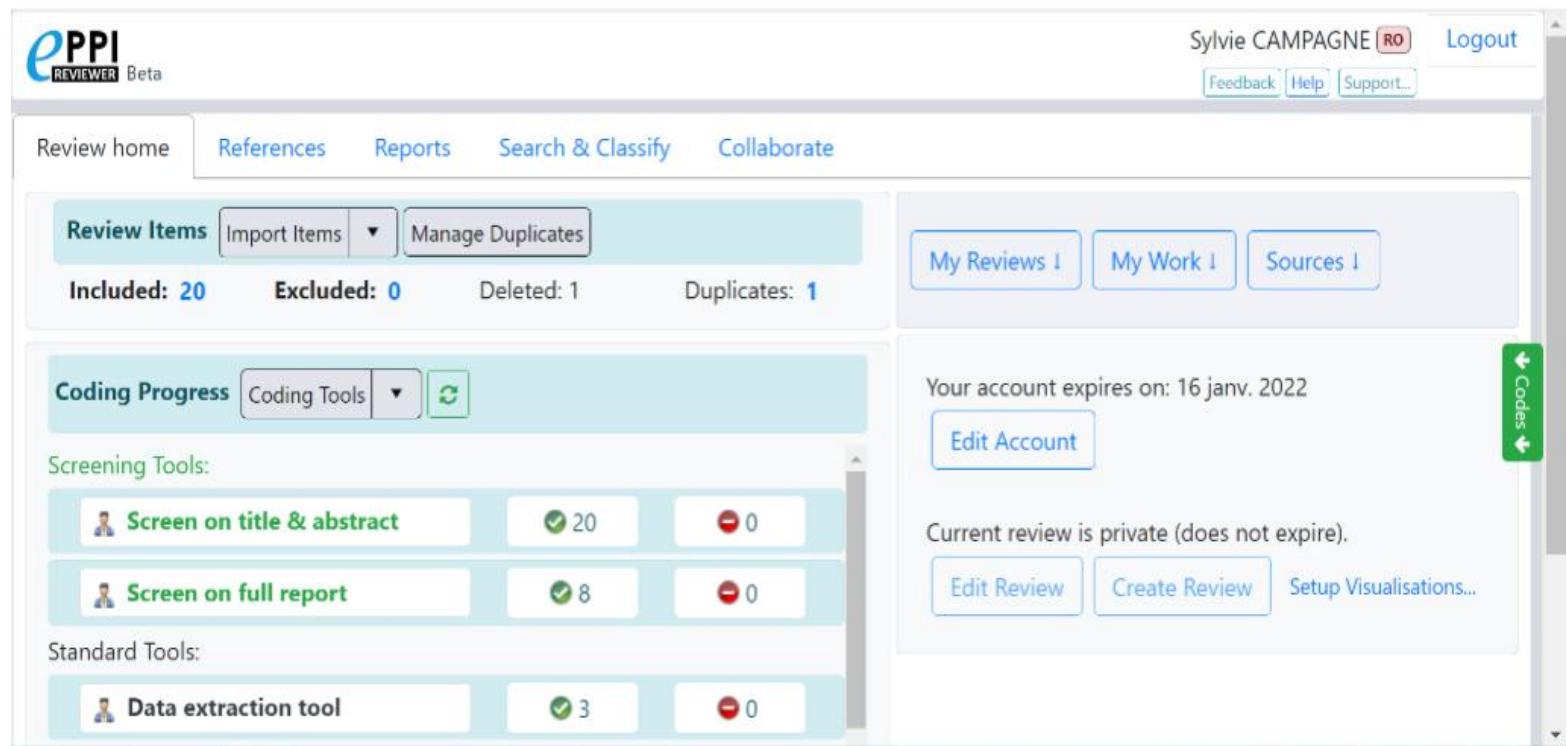
Jessica Kaufman, Cochrane Consumers & Communication Review Group, Centre for Health Communication and Participation, La Trobe University, 2011)

The screening phase

EPPI reviewer

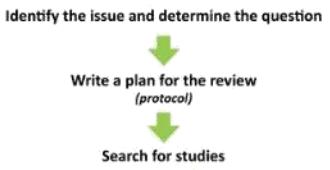
- Online tool – not free
- Very practical if several reviewers
- One place for every data

= Free version
CADIMA



The screenshot shows the EPPI Reviewer software interface. At the top, there is a navigation bar with links for 'Review home', 'References', 'Reports', 'Search & Classify', and 'Collaborate'. The 'Search & Classify' tab is currently active. Below the navigation bar, there is a summary of review items: 'Included: 20', 'Excluded: 0', 'Deleted: 1', and 'Duplicates: 1'. A 'Coding Progress' section shows 'Coding Tools' and a 'Screening Tools' section with two items: 'Screen on title & abstract' (20 included, 0 excluded) and 'Screen on full report' (8 included, 0 excluded). A 'Standard Tools' section shows a 'Data extraction tool' (3 included, 0 excluded). On the right side of the interface, there is a message about account expiration: 'Your account expires on: 16 janv. 2022' and a 'Edit Account' button. Below this, there is a message: 'Current review is private (does not expire)' and buttons for 'Edit Review', 'Create Review', and 'Setup Visualisations...'.

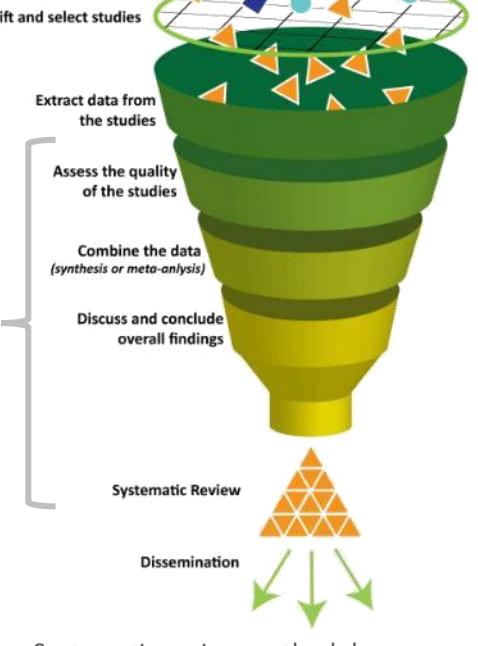
The search



The screening

The coding

The analysis

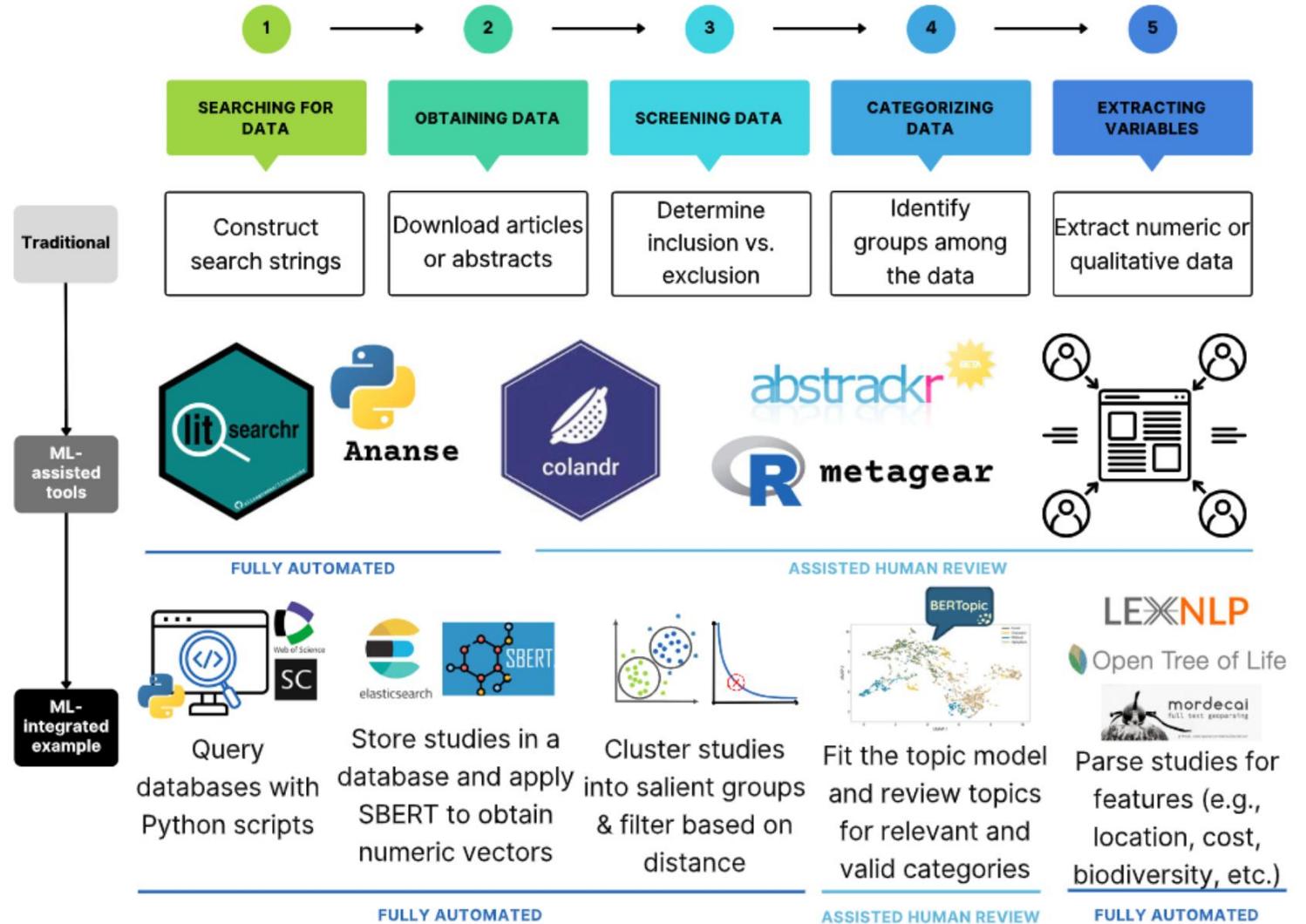


Systematic review methodology

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

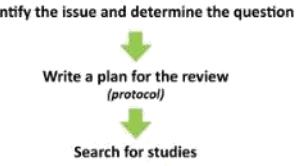
The screening phase

IA help



The screening

The search



Sift and select studies

The coding

Extract data from the studies

Assess the quality of the studies

Combine the data (synthesis or meta-analysis)

Discuss and conclude overall findings

The analysis

Systematic Review

Dissemination

Systematic review methodology

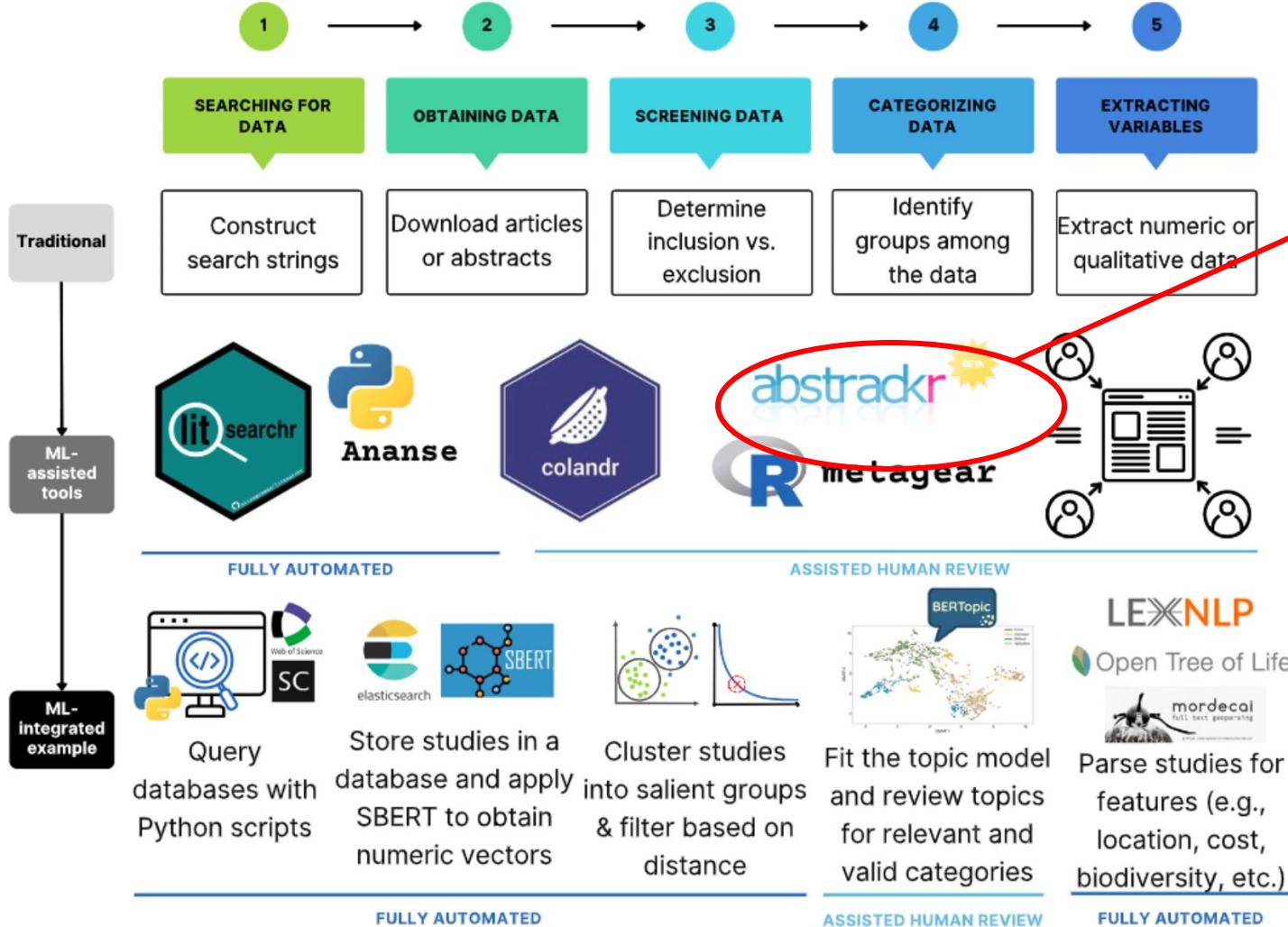
Jessica Kaufman, Cochrane Consumers & Communication Review Group, Centre for Health Communication and Participation, La Trobe University, 2011)

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

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

Damien



Jon

	YES	NO	DOUBT
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)

→ Calculation of 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

```
# 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
```

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

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

The search

Sift and select studies

The coding

Extract data from the studies

The analysis

Assess the quality of the studies

Combine the data (synthesis or meta-analysis)

Discuss and conclude overall findings

Systematic Review

Dissemination

Systematic review methodology

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



Reporting

Meeting Name

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 CEDER 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 a 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 full-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 eligible (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

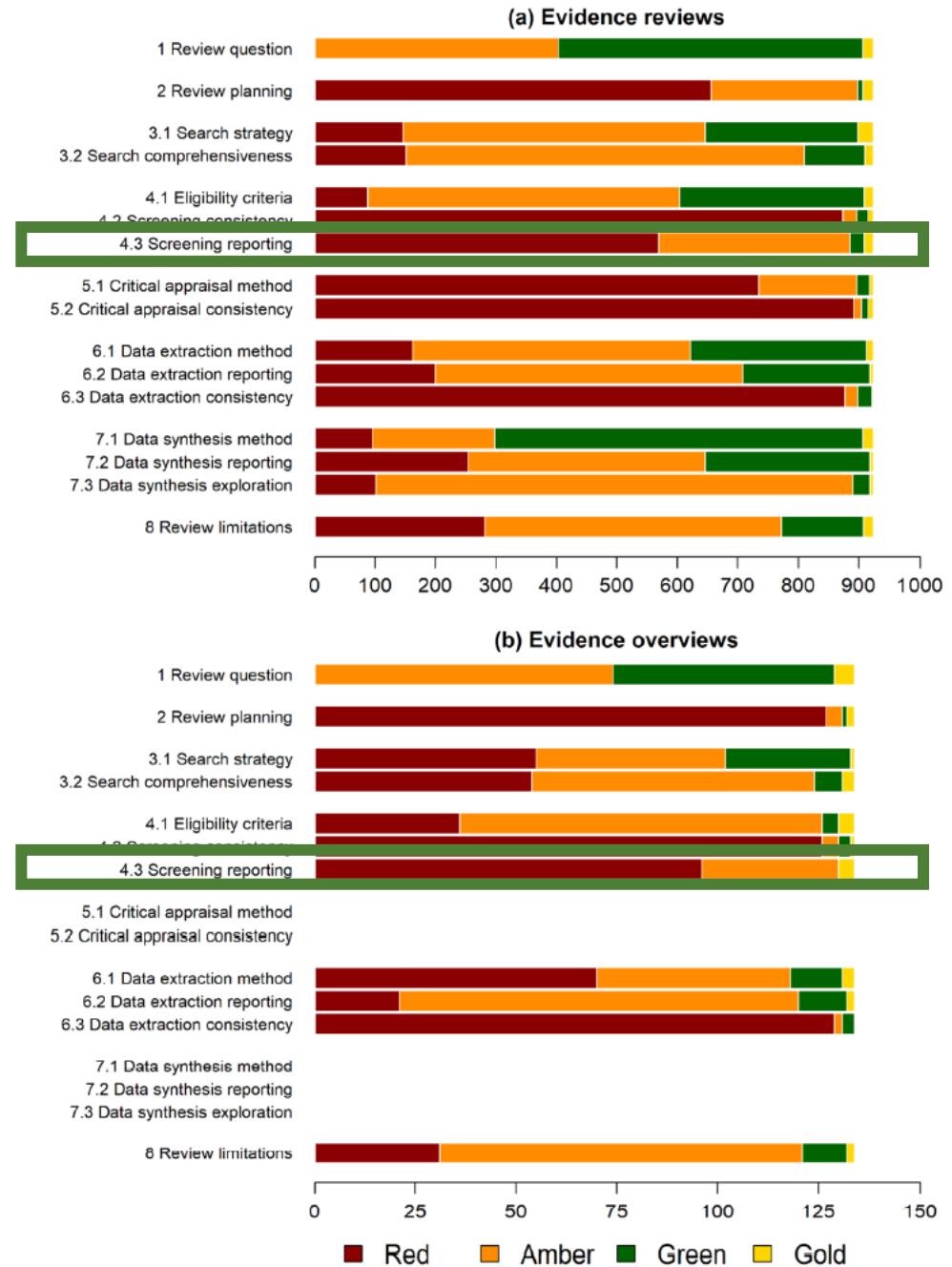


Fig. 2 The distribution of CEEESAT ratings for each criterion for evidence reviews (n = 924, top) and evidence overviews (n = 134, bottom) published between 2018 and 2020. Note, no red category is included for Criterion 1 as this is an eligibility criterion for inclusion in the CEEDER database (red articles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



- 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

[Download PDF](#)[Sections](#)[References](#)[Abstract](#)[Background](#)[PRISMA and environmental reviews](#)[Aims and objectives](#)[Methods](#)[Key differences between ROSES and PRISMA](#)[Distinction between checklist and meta-data](#)[Digitisation of ROSES](#)[Benefits of ROSES](#)[Conclusions](#)[References](#)[Authors' contributions](#)

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

Preparing your manuscript

- Systematic Review
- Systematic Review Protocol
- Systematic Map
- Systematic Map Protocol
- Methodology
- Commentary
- Letter to the Editor
- Research Article
- Evidence in Action

- Prepare supporting information
- Conditions of publication
- Editorial policies
- Peer-review policy
- Manuscript transfers
- Promoting your

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

Official journal of



Collaboration for
Environmental
Evidence

Submit manuscript

Editorial Board

Instructions for Editors

Sign up for article alerts and news from this journal

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.



- 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



GUIDELINES FOR AUTHORS

CEE CRITICAL APPRAISAL TOOL

ROSES REPORTING STANDARDS

CADIMA SYNTHESIS TOOL

REGISTER YOUR PROTOCOL IN PROCEED

STAKEHOLDER ENGAGEMENT

ROSES

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



ROSES

Reporting standards for Systematic Evidence Syntheses

ROSES is a collaborative initiative with the aim of improving the standards of reporting in evidence syntheses. At the core of ROSES is a set of detailed state-of-the art forms for ensuring evidence syntheses report their methods to the highest possible standards.

The ROSES initiative is relevant for anyone conducting or reviewing a systematic review or systematic map. ROSES forms will help review authors to ensure that all relevant methodological information is reported in their review, and will help editors and peer-reviewers to critique the reliability and validity of a review.

ROSES was introduced to the evidence synthesis community by Neal Haddaway, Biljana Macura, Paul Whaley and Andrew Pullin in their article in Environmental Evidence in early 2018 (Haddaway et al. 2018).

CEE now considers it mandatory for all submitting authors of systematic review and map protocols

Resources for Authors

Guidelines for Authors

Aims and Scope

Table of Contents

Updates and Corrections

1. Process Summary

2. Need for Evidence, Synthesis Type and
Review Team

3. Planning a CEE Evidence Synthesis

4. Writing and Registering a Protocol

5. Conducting a Search

6. Eligibility Screening

7. Data Coding and Data Extraction

8. Critical appraisal of study validity (SRs)

9. Data Synthesis

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



CEE now considers it mandatory for all submitting authors of systematic review and map protocols and reports to include the ROSES checklist as part of their submission to demonstrate that the methodology used has been conducted along with the submitted manuscript as a supplementary file. Failure to do so could result in your manuscript being returned before review. Completion of the ROSES forms does not require a considerable time commitment, but if done early, could save considerable resources by avoiding your manuscript being bounced by editorial staff prior to peer-review.

CEE encourages authors to read ROSES checklists for reviews and maps as soon as they begin a new project to facilitate completion of the forms at the submission stage. The information and support in the ROSES forms could also make the job of conducting a review and drafting the protocol and report documents much easier.

Authors are encouraged to check the ROSES website to ensure they are using the most up-to-date version of the ROSES forms.

Below are direct links to information about ROSES and ROSES forms for all CEE review authors.

[ROSES for systematic map protocols](#)

[ROSES for systematic map reports](#)

[ROSES for systematic review protocols](#)

[ROSES for systematic review reports](#)

[ROSES template for flow diagram of review activities](#)

[ROSES website](#)

Haddaway et al. 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. Environmental Evidence



9. Data Synthesis

10. Interpreting findings and reporting

SERVICES FOR EVIDENCE USERS

WORKING GROUPS



References

CEE Critical Appraisal Tool

ROSES reporting standards

CADIMA Synthesis Tool

PROCEED

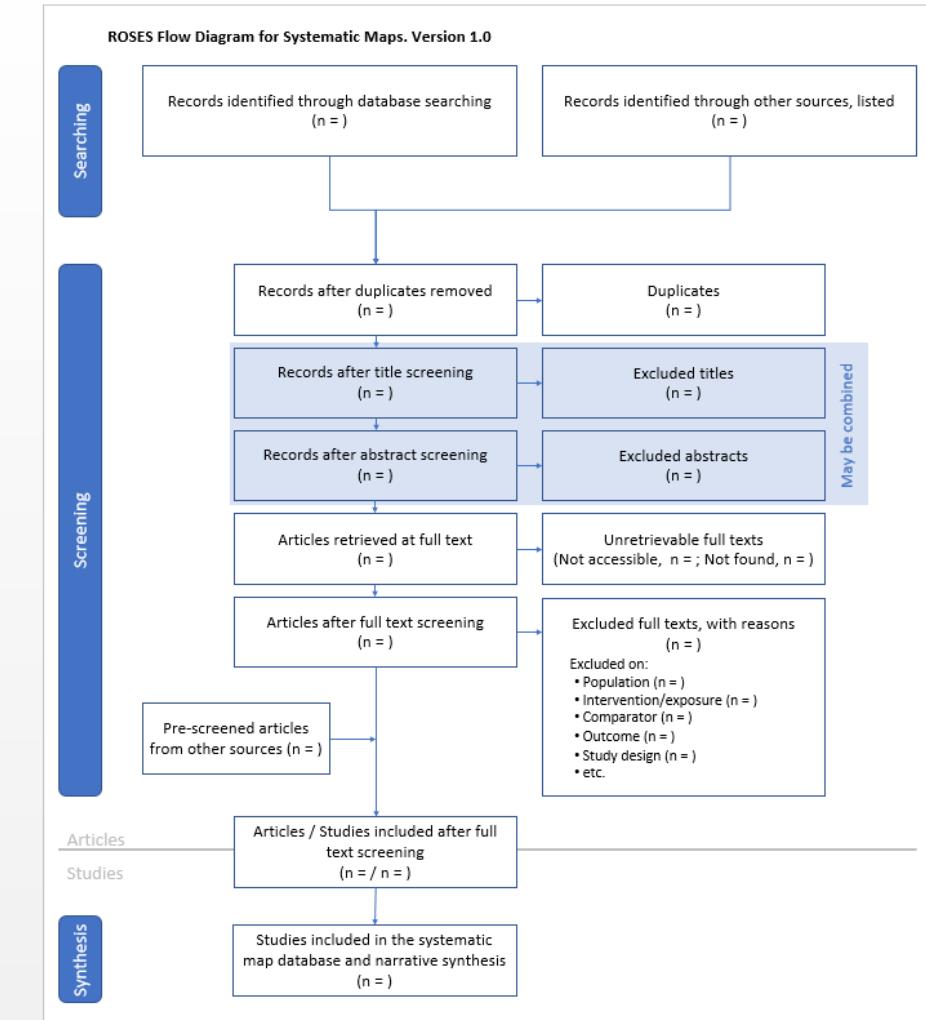
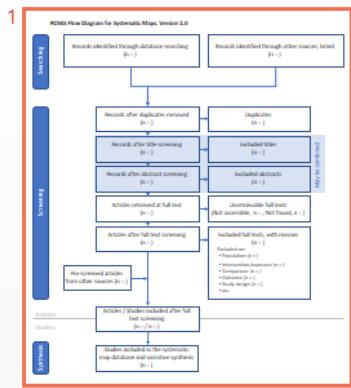
Stakeholder Engagement



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





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

Options

Synthesis type:

review

Include prescreened records:

yes

Title and abstract screening:

combined

Select type of synthesis:

narrative

Data sources

Database results:

Other sources results:

Prescreened records:

Additional description of prescreened studies

Deduplication

Deduplicated records:

Duplicates removed:

Screening

Included titles and abstracts:

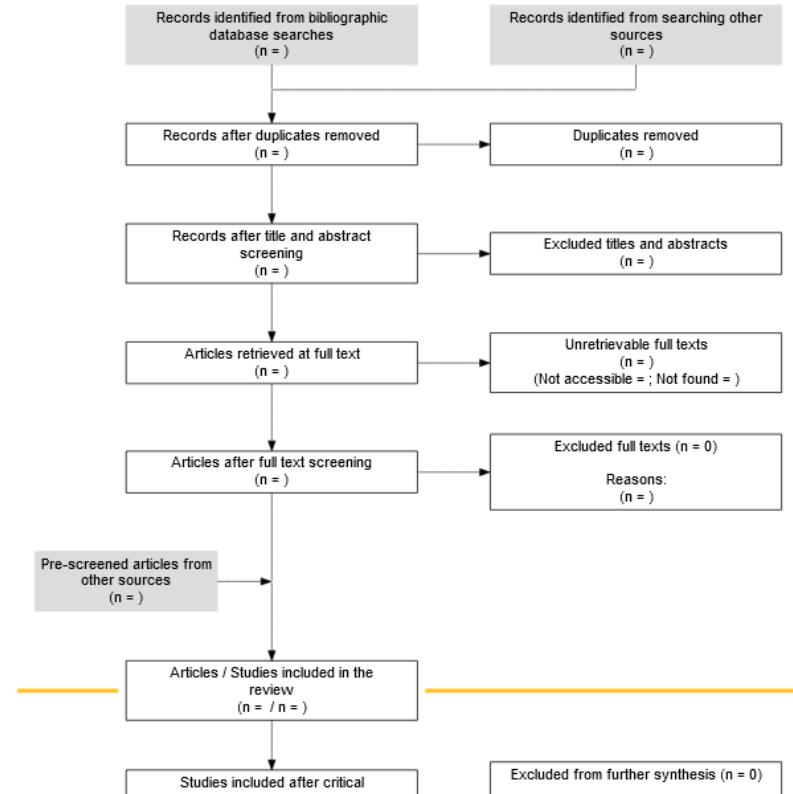
Excluded titles and abstracts:

Retrieved full texts:

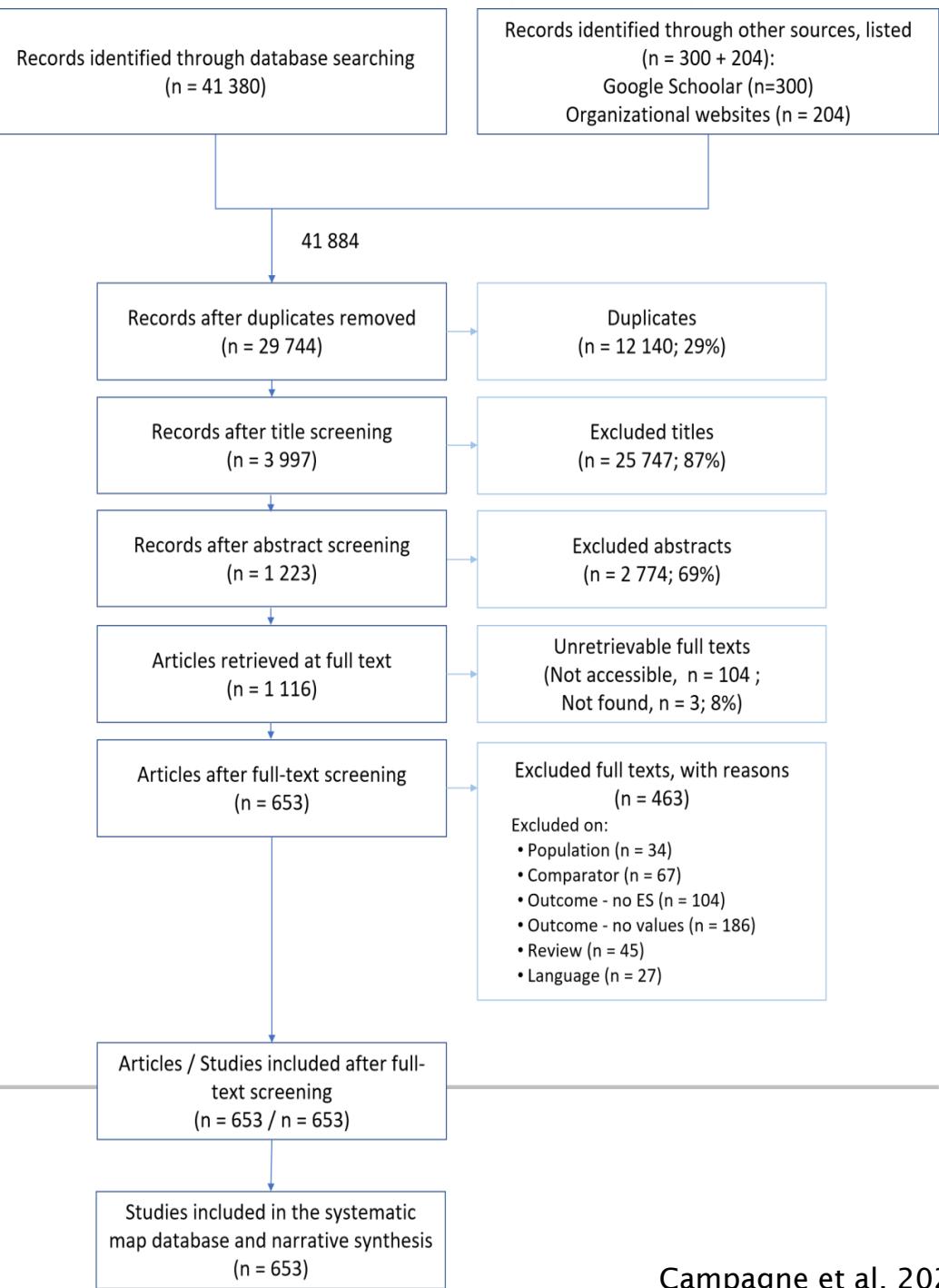


ROSES

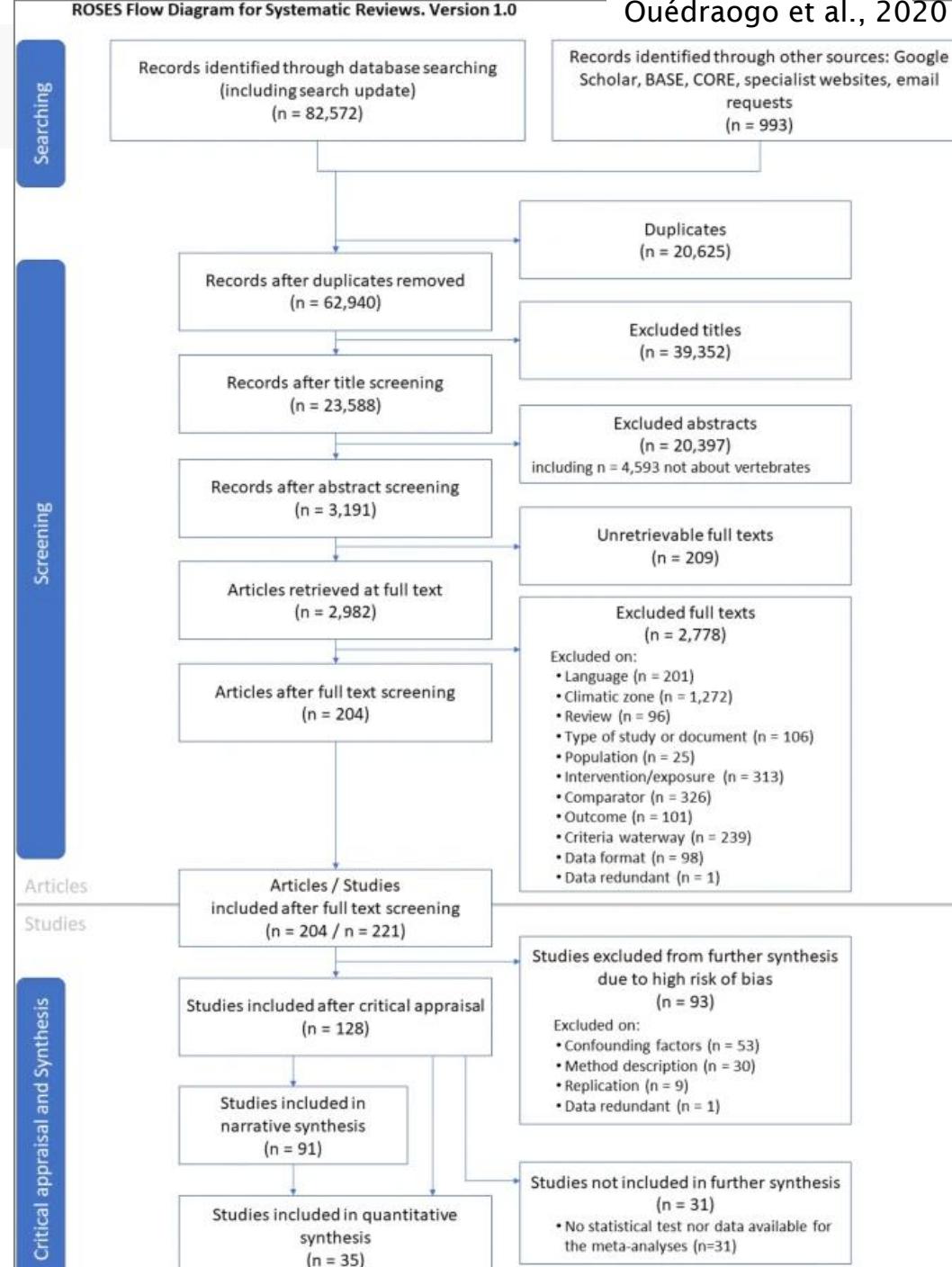
RepOrting standards for Systematic Evidence Syntheses



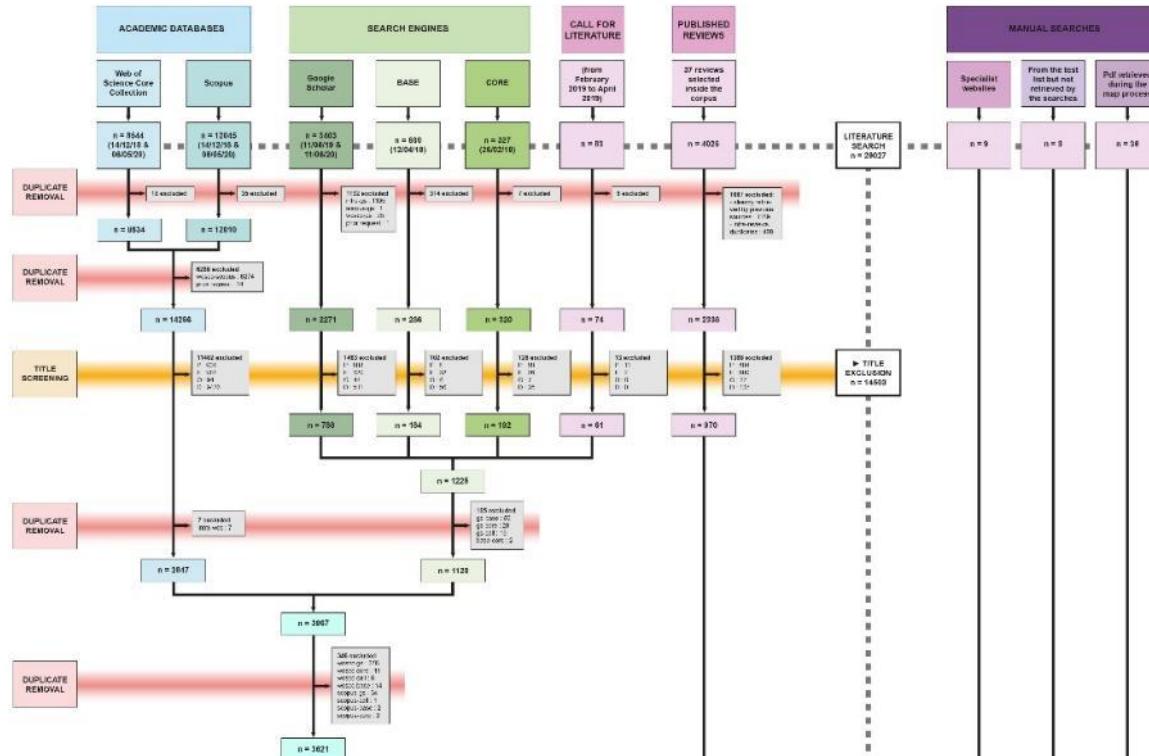
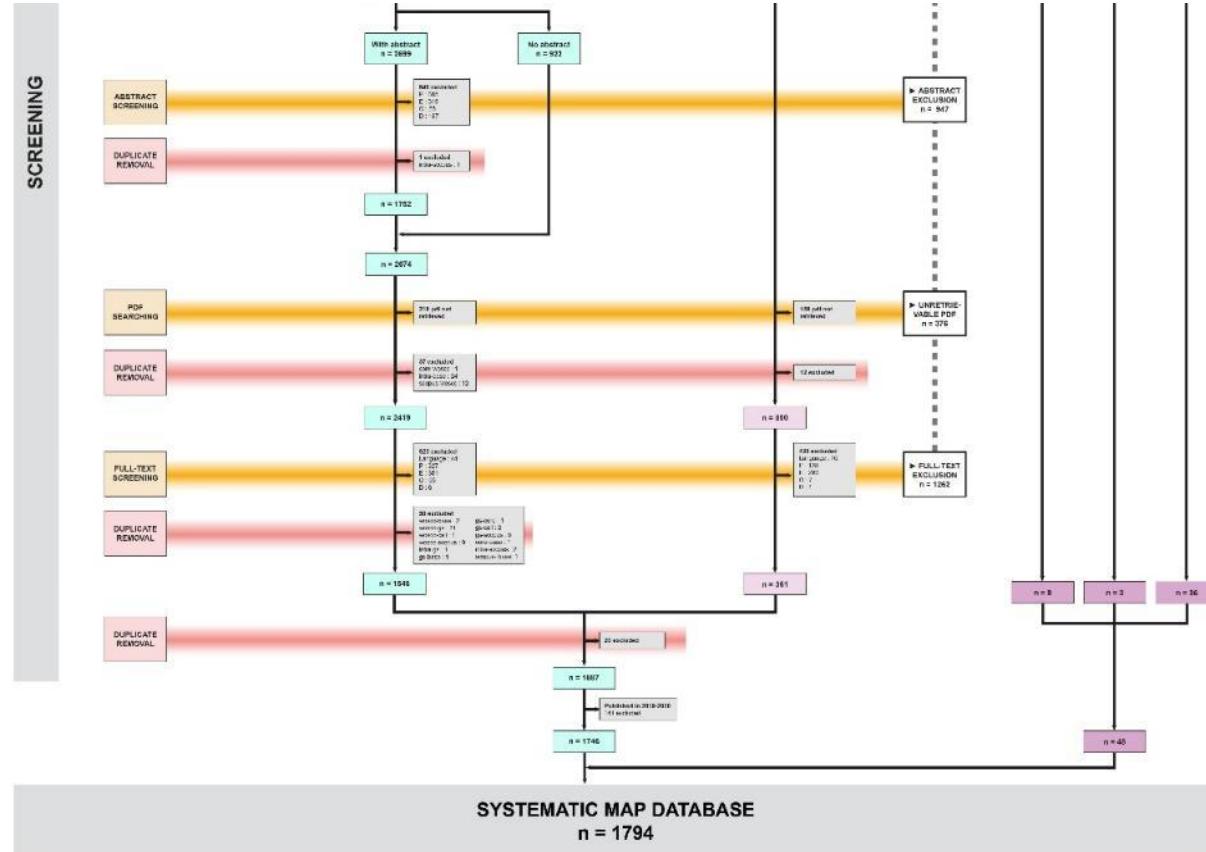
Searching



ROSES Flow Diagram for Systematic Reviews, Version 1.0



More detailed flow diagram

SEARCHING

SCREENING


Sordello et al., 2020 (additional file)

ROSES: the form for systematic reviews



Microsoft Word ribbon interface showing the ROSES form for systematic reviews.

Word ribbon tabs: FICHIER, ACCUEIL, INSERTION, MISE EN PAGE, FORMULES, DONNÉES, RÉVISION, AFFICHAGE. The ACCUEIL tab is selected.

Word ribbon sub-tabs: Couper, Copier, Coller, Reproduire la mise en forme, Presse-papiers, Police, Alignement, Nombre, Style, Cells, Édition.

Word ribbon icons: Renvoyer à la ligne automatiquement, Fusionner et centrer, Mise en forme conditionnelle, Mettre sous forme de tableau, Normal, Insatisfaisant, Neutre, Satisfaisant, Insérer, Supprimer, Format, Somme automatique, Remplissage, Effacer, Trier et Rechercher et filtre et sélectionner.

Word status bar: A1, Item number, Romain SORDELLO.

Table structure:

A	B	C	D	E	F	G	
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



ROSES for Systematic Review Reports.xlsx - Excel

Romain SORDELLO

FICHIER	ACCUEIL	INSERTION	MISE EN PAGE	FORMULES	DONNÉES	RÉVISION	AFFICHAGE	Style		Cellules		Édition	
Coller	Couper	Calibri	12	A ¹	Renvoyer à la ligne automatiquement	Standard	Mise en forme conditionnelle	Normal	Insatisfaisant	Insérer	Supprimer	Σ Somme automatique	A ²
Coller	Coller	G	I	S	Fusionner et centrer	% 000	Mettre sous forme de tableau	Neutre	Satisfaisant	Format	Remplissage	Rechercher et sélectionner	Z
Coller	Reproduire la mise en forme	Police	Police	Police	Alignement	Nombre	Style	Insérer	Supprimer	Format	Effacer	Trier et	Effacer
G7	Yes												
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										
11													

Please enter
only 'yes' or
'no'

- **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 (équivalent du ROSES Flow diagram)

=> PRISMA checklist (équivalent du ROSES Form)



Welcome to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) website!

PRISMA is an evidence-based minimum set of items for reporting in systematic reviews and meta-analyses. PRISMA primarily focuses on the reporting of reviews evaluating the effects of interventions, but can also be used as a basis for reporting systematic reviews with objectives other than evaluating interventions (e.g. evaluating aetiology, prevalence, diagnosis or prognosis).

Who should use PRISMA?

- Authors: PRISMA aims to help authors improve the reporting of systematic reviews and meta-analyses.
- Journal Peer reviewers and editors: PRISMA may also be useful for critical appraisal of published systematic reviews, although it is not a quality assessment instrument to gauge the quality of a systematic review.

News Feed

PRISMA Website re-design

The PRISMA website underwent a much-needed update in October 2015 to update the content of the website. We have updated the look of the site and added the PRISMA extensions, translations, and information about review protocols.

PRISMA Extensions!

Several PRISMA extensions have been published in 2015 so far.

- PRISMA-P for developing review protocols was published in January 2015 in *Systematic Reviews* and the *BMJ*.
- PRISMA-IPD (individual patient data) was published in *JAMA* in April
- PRISMA-NMA (Network Meta-Analyses) was published in *Annals of Internal Medicine* in June

These are in addition to the PRISMA Abstract and Equity extensions, all found on the PRISMA website, [here](#).

[Read more...](#)

Key Documents

- PRISMA 2020 Checklist
- PRISMA 2020 flow diagram
- PRISMA 2020 Statement
- PRISMA 2020 Explanation and Elaboration



PROSPERO

International prospective register of systematic reviews



Tweets from @PRISMAStatement

[Follow on Twitter](#)

PRISMA Statement Retweeted



Chris Pritchard @chriscpritchard · Jul 3



If you want to check out the newest features, head on over to: estech.shinyapps.io/PRISMA_flowdia..., we now support reporting of individual databases and registers, meaning you can produce #PRISMA-S compliant flow diagrams!
@PRISMAStatement @nealhaddaway @mcguinlu @mjpares

PRISMA Flow Diagram

The flow diagram depicts the flow of information through the different phases of a systematic review. It maps out the number of records identified, included and excluded, and the reasons for exclusions. Different templates are available depending on the type of review (new or updated) and sources used to identify studies.

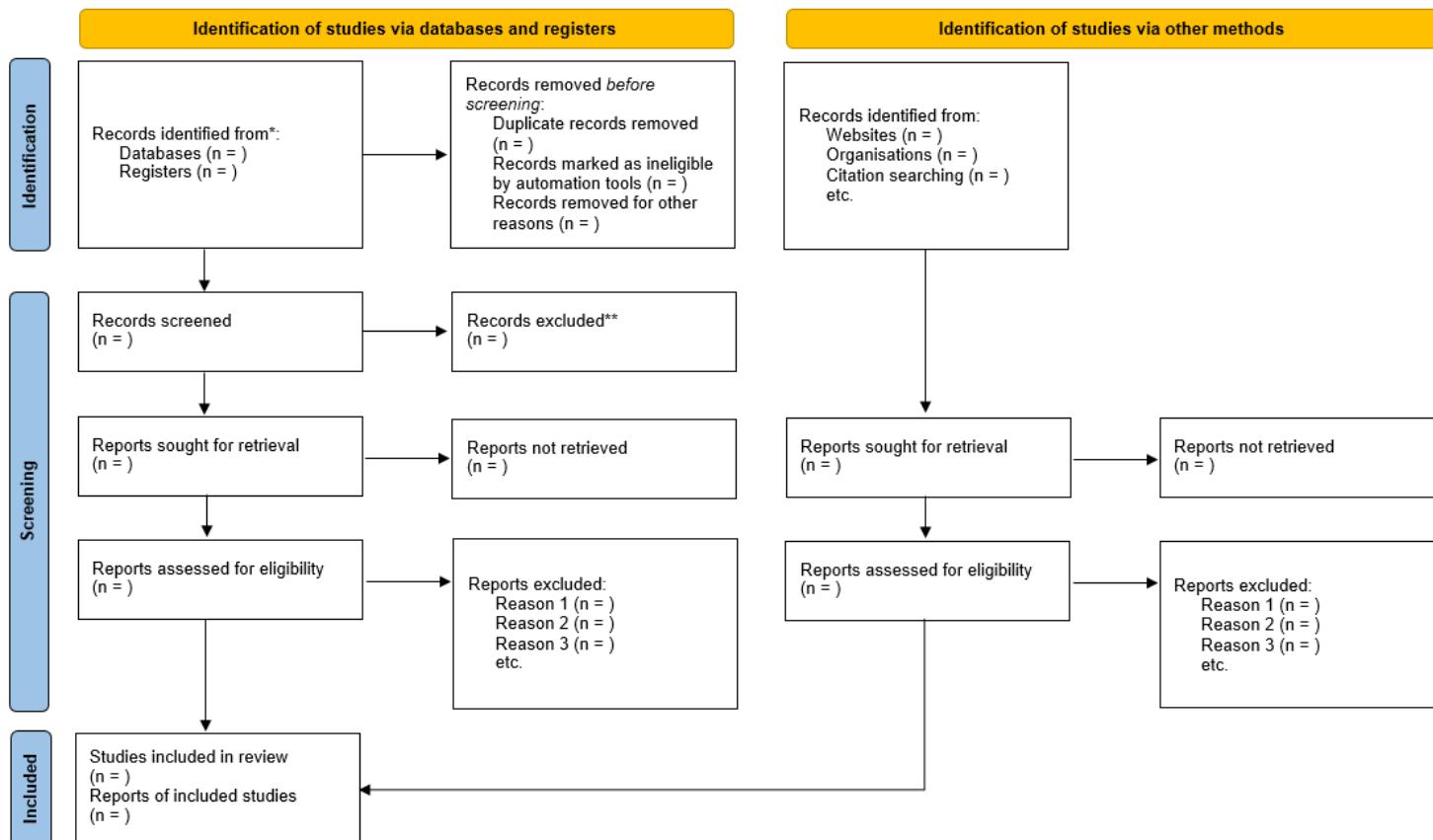
-  PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only
-  PRISMA 2020 flow diagram for new systematic reviews which included searches of databases, registers and other sources
-  PRISMA 2020 flow diagram for updated systematic reviews which included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

Flow diagrams can also be generated using a Shiny App available at <https://www.eshackathon.org/software/PRISMA2020.html>

For more information about citing and using PRISMA click [here](#).



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).

Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number). 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/>

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](#)

Upload your edited file here:

Choose CSV File

[Browse...](#)

No file selected

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

Individual databases

[Click to reset](#)

Identification

Databases	Registers
0	0

Websites	Organisations
0	0

Citations	
0	

Duplicates removed

Automatically excluded

Screening

Records screened	Records excluded
------------------	------------------

Records sought for retrieval	Reports not retrieved
------------------------------	-----------------------

Reports assessed for eligibility	Reports excluded: Reason1 (n = xxx) Reason2 (n = xxx) Reason3 (n = xxx)
----------------------------------	--

New studies included in review (n = 0) Reports of new included studies (n = 0)	Reports assessed for eligibility (n = 0)
---	---

Identification of new studies via databases and registers

```

graph TD
    A[Records identified from:  
Databases (n = 0)  
Registers (n = 0)] --> B[Records screened  
(n = 0)]
    B --> C[Records excluded  
(n = 0)]
    C --> D[Reports sought for retrieval  
(n = 0)]
    D --> E[Reports not retrieved  
(n = 0)]
    E --> F[Reports assessed for eligibility  
(n = 0)]
    F --> G[Reports excluded:  
Reason1 (n = xxx)  
Reason2 (n = xxx)  
Reason3 (n = xxx)]
    F --> H[New studies included in review  
(n = 0)  
Reports of new included studies  
(n = 0)]
    
```

Identification of new studies via other methods

```

graph TD
    A[Records identified from:  
Websites (n = 0)  
Organisations (n = 0)  
Citation searching (n = 0)] --> B[Reports sought for retrieval  
(n = 0)]
    B --> C[Reports not retrieved  
(n = 0)]
    C --> D[Reports assessed for eligibility  
(n = 0)]
    D --> E[Reports excluded:  
Reason1 (n = xxx)  
Reason2 (n = xxx)  
Reason3 (n = xxx)]
    D --> F[New studies included in review  
(n = 0)  
Reports of new included studies  
(n = 0)]
    
```

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



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	Inclusion/exclusion decisions at the three screening stages and extraction of rejected full-texts						
3	Sordello et al. 2020						
4	How to read the different columns is explained in the CodeBook sheet						
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							

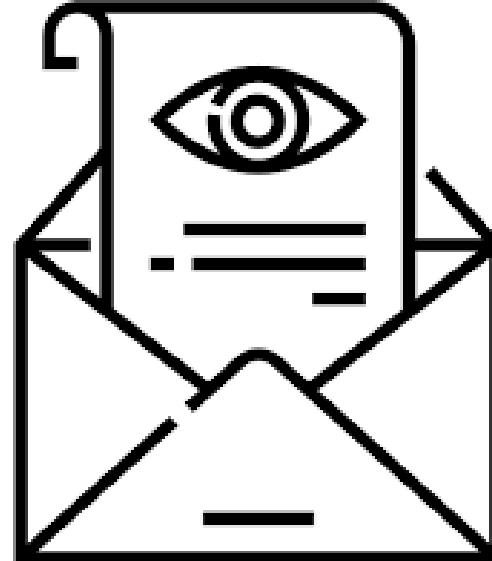
A	B	C	D	E	F	G	H
1	ibilio_interné	biblio_pid	biblio_authors	biblio_cor	biblio_title		
2	31	10.1002/aqc.1015	Currey, RJC; Dawson	AQUATIC CO	Survival rates for a declining population of bottlenose dolphins in Dou	2009	PECO
3	39	10.1002/aqc.2416	Pleslic, G; Gospic, N	AQUATIC CO	The abundance of common bottlenose dolphins (<i>Tursiops truncatus</i>) in	2015	PECO
4	44	10.1002/aqc.2833	Braulik, GT; Kasuga	AQUATIC CO	Cetacean rapid assessment: An approach to fill knowledge gaps and ta	2018	PECO
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
6	78	10.1002/ece3.2355	Vaugoyeau, M; Adri	ECOLOGY AN	Interspecific variation in the relationship between clutch size, laying da	2016	PECO
7	84	10.1002/ece3.2699	Donovan, CR; Harris	ECOLOGY AN	A simulation approach to assessing environmental risk of sound expos	2017	PECO
8	94	10.1002/ecs2.1905	Wang, JW; Poh, CH	ECOSPHERE	Building biodiversity: drivers of bird and butterfly diversity on tropical u	2017	PECO
9	115	10.1002/JEMT.10185	Gesi, M; Lenzi, P; Fo	MICROSCOP	Effects of loud noise exposure on mouse myocardium: A comparison wit	2002	PECO
10	135	10.1002/jwmg.21179	Green, AW; Aldridge	JOURNAL OF	Investigating impacts of oil and gas development on greater sage-grou	2017	PECO
11	159	10.1002/ps.4619	Mazzoni, V; Gordon	PEST MANAG	Design of a candidate vibrational signal for mating disruption against t	2017	PECO
12	173	10.1002/we.2160	Hu, CC; Albertson, R	WIND ENER	Wind turbine sensor array for monitoring avian and bat collisions	2018	PECO
13	178	10.1002/wsb.546	Rosa, P; Swider, CR	WILDLIFE SQ	Disentangling Effects of Noise from Presence of Anthropogenic Infrastru	2015	PECO
14	197	10.1006/anbe.1999.1278	Nelson, BS	ANIMAL BEH	Avian dependence on sound pressure level as an auditory distance cue	2000	PECO
15	203	10.1006/appc.1996.0015	Krebs, H; Macht, M	APPETITE	Effects of stressful noise on eating and non-eating behavior in rats	1996	PECO
16	247	10.1007/978-1-4419-7311-0	Patrício, S	EFFECTS OF	Underwater Noise Effects From Wave Energy Devices on Marine Mamma	2012	PECO
17	248	10.1007/978-1-4419-7311-0	Wright, AJ	EFFECTS OF	Noise-Related Stress and Cumulative Impact Assessment	2012	PECO
18	250	10.1007/978-1-4419-7311-0	Breitzke, M; Bohlen	EFFECTS OF	Modeling Cumulative Sound Exposure Along a Seismic Line to Assess th	2012	PECO
19	257	10.1007/978-1-4419-7311-0	Mountain, DC; Ande	EFFECTS OF	The ESME Workbench: Simulating the Impact of Anthropogenic Sound on	2012	PECO
20	266	10.1007/978-1-4419-7311-0	Mueller-Blenkle, C	EFFECTS OF	A Novel Field Study Setup to Investigate the Behavior of Fish Related to	2012	PECO
21	272	10.1007/978-1-4939-2981-0	Bolgan, M; Picciulin	EFFECTS OF	Is the Venice Lagoon Noisy? First Passive Listening Monitoring of the Ve	2016	PECO
22	282	10.1007/978-1-4939-2981-0	Roberts, L; Breithau	EFFECTS OF	Sensitivity of Crustaceans to Substrate-Borne Vibration	2016	PECO
23	286	10.1007/978-1-4939-2981-0	Sebastianutto, L; St	EFFECTS OF	Communicating the Issue of Underwater Noise Pollution: The Deaf as a	2016	PECO
24	287	10.1007/978-1-4939-2981-0	Sidorovskaya, NA; A	EFFECTS OF	Passive Acoustic Monitoring of the Environmental Impact of Oil Explorat	2016	PECO
25	304	10.1007/978-1-4939-2981-0	Willis, KL	EFFECTS OF	Underwater Hearing in Turtles	2016	PECO
26	306	10.1007/978-1-4939-2981-0	Zhang, XG; Guo, HG	EFFECTS OF	Noise-Dependent Fish Distribution in Kelp Beds	2016	PECO
27	309	10.1007/978-1-4939-2981-0	Lewandowski, J; Luc	EFFECTS OF	Summary Report Panel 3: Gap Analysis from the Perspective of Animal B	2016	PECO
28	311	10.1007/978-1-4939-2981-0	Aerts, LAM; Streever	EFFECTS OF	Modeled and Measured Underwater Sound Isopleths and Implications	2016	PECO
29	320	10.1007/978-1-4939-2981-0	Eggleson, DB; Lillis	EFFECTS OF	Soundscapes and Larval Settlement: Larval Bivalve Responses to Habita	2016	PECO
30	345	10.1007/978-1-4939-2981-0	Nehls, G; Rose, A; D	EFFECTS OF	Noise Mitigation During Pile Driving Efficiently Reduces Disturbance of	2016	PECO
31	361	10.1007/978-3-319-25658-7	Jennett, C; Cognetti	PARTICIPAT	Usability and Interaction Dimensions of Participatory Noise and Ecolog	2017	PECO
32	362	10.1007/978-3-319-27721-1	Roderick A. Suthers	VERTEBRATE	Vertebrate Sound Production and Acoustic Communication	2016	PECO
33	446	10.1007/BF00614503	ROMER, H; BAILEY, W	JOURNAL OF	INSECT HEARING IN THE FIELD .3. MASKING BY NOISE	1989	PECO
34	454	10.1007/BF01651380	Bergen, F; Abs, M	JOURNAL FU	Etho-ecological study of the singing activity of the Blue Tit (<i>Parus caeruleus</i>)	1997	Language
35	463	10.1007/BF02242027	Kusters, E; van Rade	ZEITSCHRIFT	On the influence of military shooting ranges on the birds of the Wadden	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
37	477	10.1007/BF03160888	Holland, CC; Honea	WETLANDS	Wetland degradation and loss in the rapidly urbanizing area of Portland	1995	PECO
38	480	10.1007/s00018-015-1919-0	De Iriarte Rodriguez	CELLULAR AN	C-Raf deficiency leads to hearing loss and increased noise susceptibility	2015	PECO
39	532	10.1007/s00265-006-0188-0	Brumm, H; Slater, PJ	BEHAVIORAL	Ambient noise, motor fatigue, and serial redundancy in chaffinch song	2006	PECO
40	539	10.1007/s00265-013-1625-0	Penna, M; Zuniga, D	BEHAVIORAL	Strong responsiveness to noise interference in an anuran from the sout	2014	PECO
41	547	10.1007/s00267-001-0065-0	Forman, RTT; Reine	ENVIRONME	Road traffic and nearby grassland bird patterns in a suburbanizing land	2002	PECO
42	552	10.1007/s00267-010-0475-0	Smith, JA; Chow, E	ENVIRONME	Impacts of Adjacent Land Use and Isolation on Marsh Bird Communities	2010	PECO

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 addressee	Country	Region	GPS coordinate	Biological groups	LTI	LTI verge	Comparison	Study desi	Outcomes	Susceptibil	Narrative synthe	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). <i>Environ Pollut.</i> 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. <i>Regul Rivers Res Manag.</i> 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, Loucougou Ray G, Spiegelberger T, Tabacchi E, et al. Biodiversity assessment following a naturality gradient of riverbank protection structures in French prealps rivers. <i>Ecol Eng.</i> 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. <i>Ecography.</i> 2009;32:259-68.	Article	Eng.	Q1	United Kingdom	England, River Ouse, York city	/	<i>Chrysolina graminis</i> (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	Dymitryszyń I. The effect of the construction and renovation of a highway bypass in Central Poland on the carabid beetle fauna (Coleoptera: Carabidae). <i>Eur J Entomol.</i> 2014;111:655-652.	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. <i>Ann Limnol - Int J Limnol.</i> 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. <i>Northeast Nat.</i> 2006;13:191-212.	Article	Eng.	Q1	United States of America	Connecticut state, New London county, Lieutenant River	41°19'30"N, 72°W	Macroinvertebrates	Waterway	Riparian marsh	- Untreated sites colonized with Phragmites - Treated sites: herbicide and mowing of <i>Phragmites australis</i>	CI or CE	Abundance Bray-Curtis similarity	Medium	Included	Not included
9	WOS_1092	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. <i>Insect Conserv Divers.</i> 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_1092	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. <i>Ecol Indic.</i> 2011;11:1517-25.	Article	Eng.	Q1	Australia	New South Wales, Upper Hunter region	32°30'0"S, 151°E	Ants (Hymenoptera)	Waterway	Riparian vegetation	- Riparian unplanted grassland - Riparian young revegetation - Riparian older revegetation	CI or CE	Abundance Species richness Bray-Curtis similarity, fonctionnal 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 Neuchâtel	/	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. <i>Regul Rivers Res Manag.</i> 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	Grzbia: 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....





European Institute
for Energy Research
by EDF and KIT

Thank You

-  Sylvie Campagne
-  +49 (0) 721 6105 1330
-  sylvie.campagne@eifer.org
-  www.eifer.org

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/>