



APPEL A PROJETS FRB-MTE-OFB 2022

Pressions anthropiques et impacts sur la biodiversité terrestre

Axe REVUE SYSTEMATIQUE

Restitution intermédiaire du projet DESYBEL

Revue systématique sur l'impact du bruit anthropogénique sur la biodiversité terrestre

Léa Terray, chargée d'étude
Romain Sordello, Coordinateur de cellule
Yorick Reyjol, chef d'équipe (Porteur de projet)

Muséum national d'Histoire naturelle, PatriNat



Pourquoi s'intéresser à la pollution sonore ?



Pourquoi s'intéresser à la pollution sonore ?

PROCEEDINGS B
royalsocietypublishing.org/journal/rspb

Research


Traffic noise inhibits cognitive performance in a songbird

Allison Osbrink¹, Megan A. Meatte, Alan Tran, Katri K. Herranen, Lilliann Meek, May Murakami-Smith, Jacelyn Ito, Some Bhadra, Carrie Nunnenkamp and Christopher N. Templeton

Department of Biology, Pacific University, 2043 College Way, Forest Grove, OR 97116, USA
DOI: 10.1098/rspb.2020.2851

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Received: 16 November 2020
Accepted: 8 January 2021



Conservation Biology

Contributed Paper

Effects of traffic noise on tree frog stress levels, immunity, and color signaling




Mathieu Troianowski, Nathalie Mondy, Adeline Dumet, Caroline Arcanjo, and Thierry Lengagne*

UMR 5023 Ecologie des Hydrosystèmes Naturels et Anthropisés, Université de Lyon; ENTPE, CNRS, Université Lyon1, 6 Rue Raphaël Dubois 69622 Villeurbanne, France

Global Change Biology

Global Change Biology (2016) 22, 3349–3360, doi: 10.1111/gcb.13352

Repeated exposure reduces the response to impulsive noise in European seabass




ANDREW N. RADFORD¹, LAURIE LÈBRE², GILLES LECAILLON², SOPHIE L. NEDELEC¹ and STEPHEN D. SIMPSON³

¹School of Biological Sciences, University of Bristol, Life Sciences Building, 24 Tyn dall Avenue, Bristol BS8 1TQ, UK, ²Écocéan, 33 rue Chaptal, 34 000 Montpellier, France, ³Biosciences, College of Life and Environmental Sciences, University of Exeter, Stocker Road, Exeter EX4 4QD, UK

Eur J Wildl Res (2015) 61:871–879
DOI 10.1007/s10344-015-0964-y

ORIGINAL ARTICLE

Time to leave? Immediate response of roe deer to experimental disturbances using playbacks



Sophie Padić¹ · Nicolas Morellet² · Bruno Cargneltutti² · A. J. Mark Hewison² · Jean-Louis Martin¹ · Simon Chamaillé-Jammes¹

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Research

Cite this article: Osbrink A et al. 2021 Traffic noise inhibits cognitive performance in a songbird. *Proc. R. Soc. B* **288**: 20202851. <https://doi.org/10.1098/rspb.2020.2851>

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Department of Biology, Pacific University, 2043 College Way, Forest Grove, OR 97131, USA
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Objectif de DESYBEL

Anticiper l'importance de la pollution sonore en proposant un état des lieux des connaissances standardisé sur le sujet, afin d'aboutir à la prise en compte de cette nuisance

Biodiversité terrestre



Biodiversité terrestre

Mammifères



Oiseaux



Arthropodes



Reptiles



Gastéropodes



Amphibiens



Sources de nuisances sonores



Industriel

Bruits d'activités industrielles.
Ex : sites de construction, parcs éoliens, mines.



Transports

Bruits de tous les types de transports civils.
Ex : hélicoptères, trains, voitures.



Urbain

Bruits des villes et zones urbanisées.
Ex : trafic citadin, zones résidentielles.



Militaire

Bruits d'activités militaires
Ex : explosions, jets, bang soniques.



Récréationnel

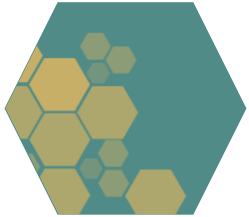
Bruits des activités récréatives.
Ex : visiteurs de zoo, randonneurs, drones, tourisme.



Autres

Autres sources de bruits.
Ex : voix humaines, aboiement de chiens, aération.

Impacts étudiés



Utilisation de l'espace

Ex : distribution des espèces,
délimitation du territoire.



Communication

Ex : fréquence du chant, chorus,
cri d'alarme.



Ecosystème

Ex : abondance, richesse
spécifique, diversité spécifique.



Reproduction

Ex: soins parentaux, nombre
d'œufs, succès reproducteur.



Comportement

Ex : vigilance, mouvements,
jeux, prospection alimentaire.



Physiologie

Ex : rythme cardiaque, masse
corporelle, taux hormonaux.

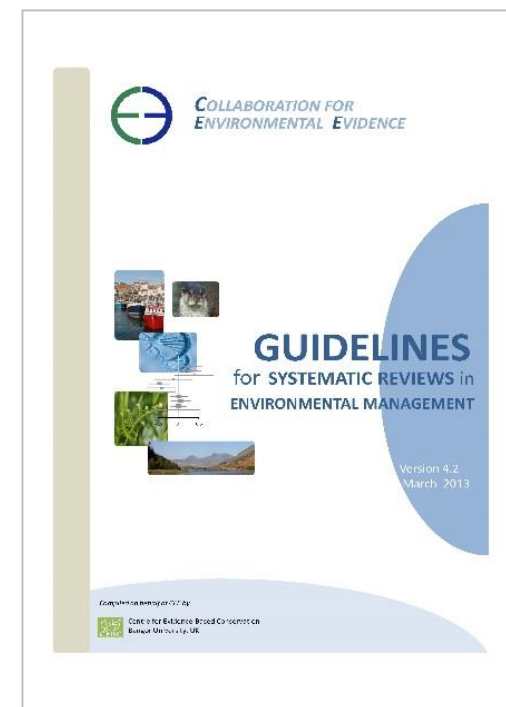
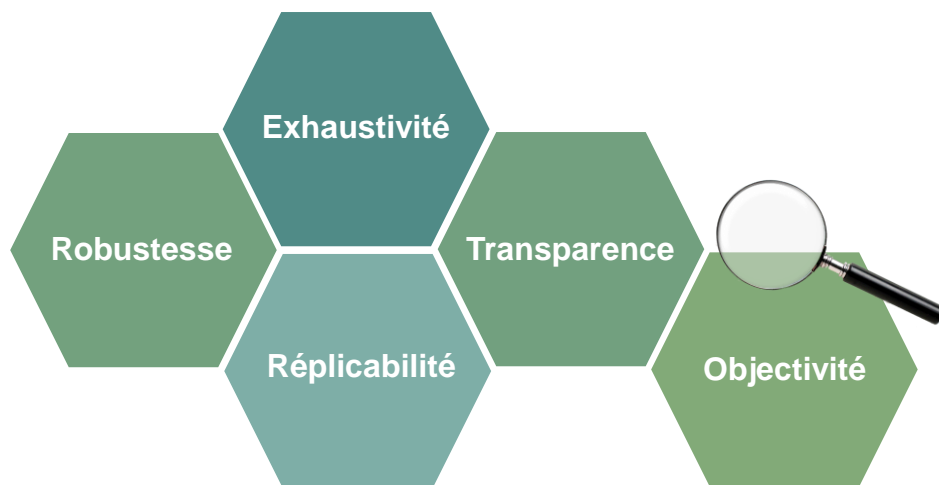


Autres

Ex : diversité phylogénétique, longueur
des télomères, taux de capture de proies.

Les revues systématiques

Méthode de synthèse bibliographique standardisée



COFIL



7 experts scientifiques



INRAE
la science pour la vie, l'humain, la terre

anses



Institut de Recherche
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FRANCE



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PATRI NAT
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NTNU

Norwegian University of
Science and Technology

La carte systématique de Sordello et al., 2020

Qu'est-ce qu'une carte systématique ?

Etat des lieux « catégorisé » des connaissances

Sordello et al. *Environ Evid* (2020) 9:20
<https://doi.org/10.1186/s13750-020-00202-y>

Environmental Evidence

SYSTEMATIC MAP

Open Access

Evidence of the impact of noise pollution on biodiversity: a systematic map



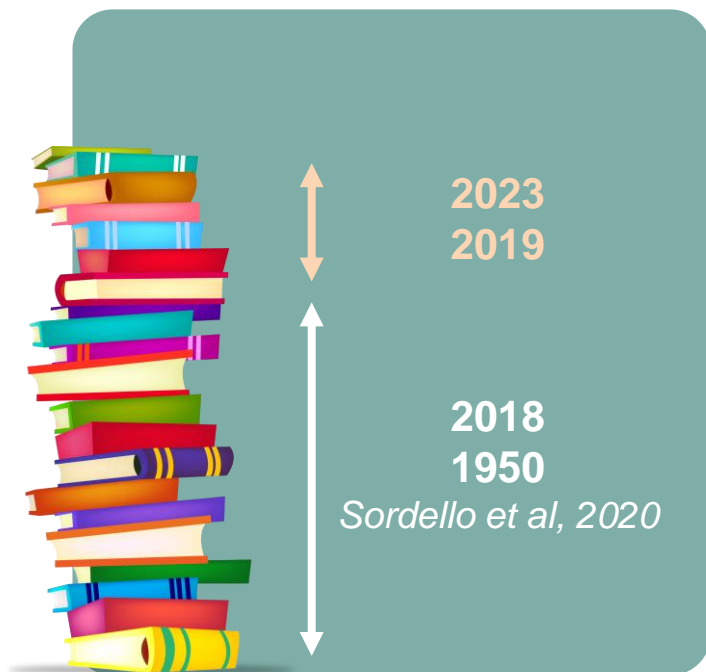
Romain Sordello^{1*}, Ophélie Ratel¹, Frédérique Flamerie De Lachapelle², Clément Leger³, Alexis Dambry¹ and Sylvie Vanpeene⁴

Abstract

Background: Ecological research now deals increasingly with the effects of noise pollution on biodiversity. Indeed, many studies have shown the impacts of anthropogenic noise and concluded that it is potentially a threat to the persistence of many species. The present work is a systematic map of the evidence of the impacts of all anthropogenic noises (industrial, urban, transportation, etc.) on biodiversity. This report describes the mapping process and the evidence base with summary figures and tables presenting the characteristics of the selected articles.

Methods: The method used was published in an a priori protocol. Searches included peer-reviewed and grey literature published in English and French. Two online databases were searched using English terms and search consistency was assessed with a test list. Supplementary searches were also performed (using search engines, a call for

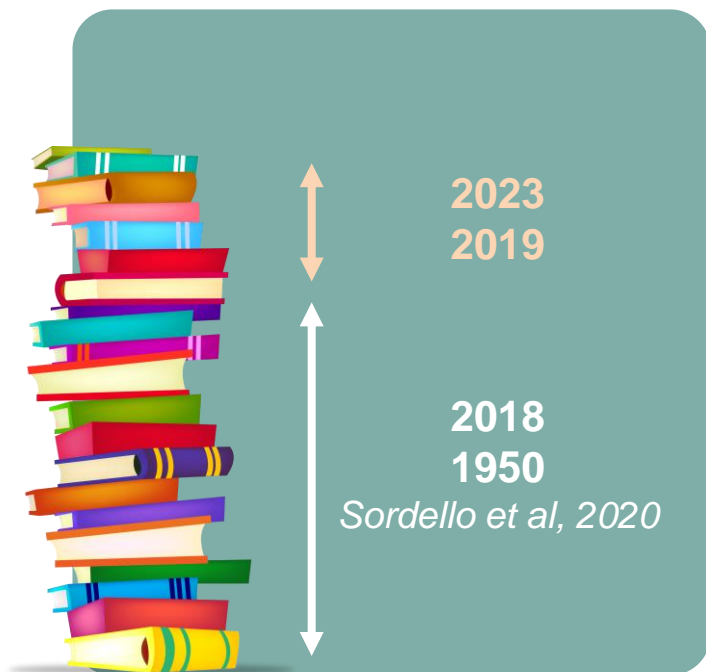
Actualisation Carte systématique



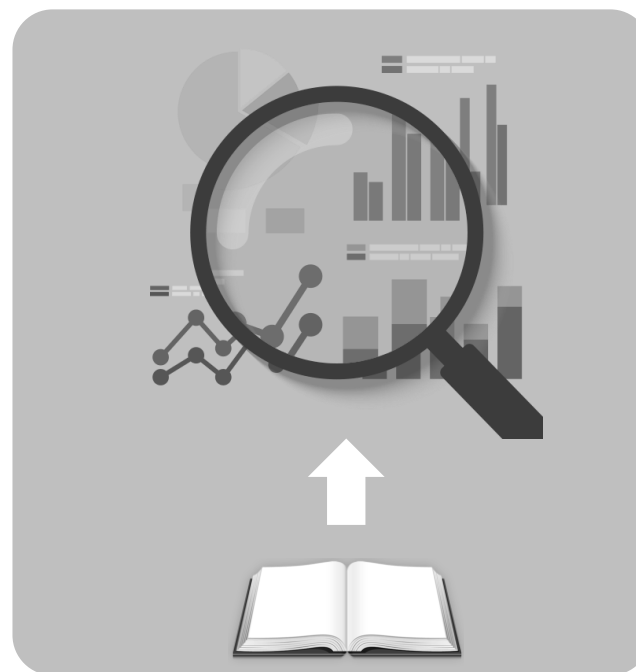
Revue systématique



Actualisation Carte systématique

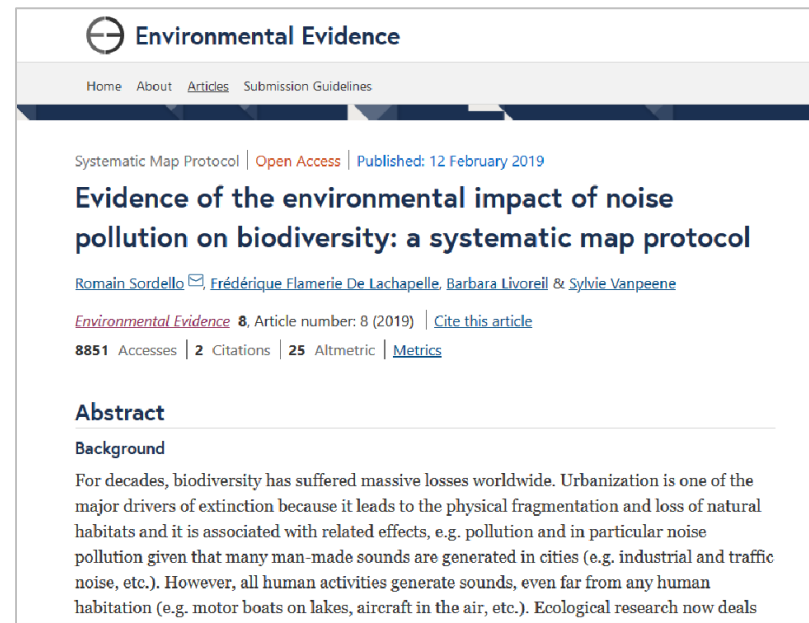



Revue systématique



1^{ère} phase : Actualisation du corpus bibliographique

Protocole de Sordello et al. 2019




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Systematic Map Protocol | [Open Access](#) | [Published: 12 February 2019](#)

Evidence of the environmental impact of noise pollution on biodiversity: a systematic map protocol

[Romain Sordello](#)  [Frédérique Flamerie De Lachapelle](#), [Barbara Livoreil](#) & [Sylvie Vanpeene](#)

Environmental Evidence **8**, Article number: 8 (2019) | [Cite this article](#)

8851 Accesses | 2 Citations | 25 Altmetric | [Metrics](#)

Abstract

Background

For decades, biodiversity has suffered massive losses worldwide. Urbanization is one of the major drivers of extinction because it leads to the physical fragmentation and loss of natural habitats and it is associated with related effects, e.g. pollution and in particular noise pollution given that many man-made sounds are generated in cities (e.g. industrial and traffic noise, etc.). However, all human activities generate sounds, even far from any human habitation (e.g. motor boats on lakes, aircraft in the air, etc.). Ecological research now deals

1^{ère} phase : Actualisation du corpus bibliographique

Collecte des citations

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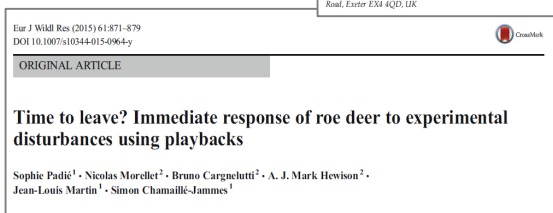
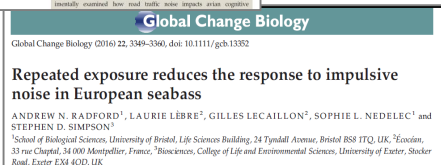
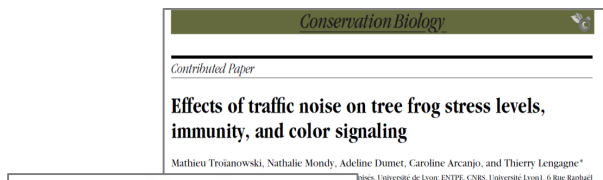
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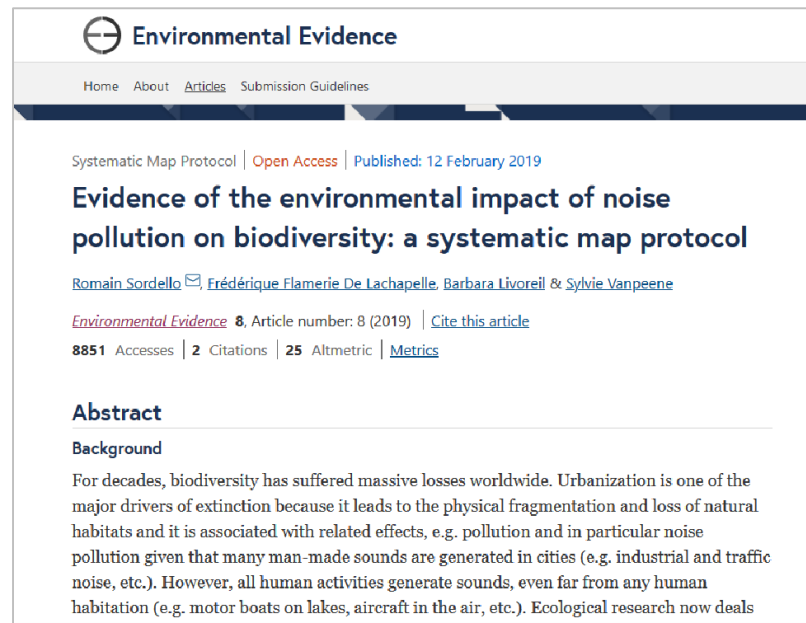
1^{ère} phase : Actualisation du corpus bibliographique


Collecte des citations

Tri des articles



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1^{ère} phase : Actualisation du corpus bibliographique


Collecte des citations

Tri des articles

Extraction métadonnées

- Observationnelle / Expérimentale
- In-situ / Ex-situ
- Éléments PECO
- ...


Protocole de Sordello et al. 2019

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1^{ère} phase : Actualisation du corpus bibliographique



Fusion avec Sordello et al. 2020

1^{ère} phase : Actualisation du corpus bibliographique

Synthèse bibliométrique

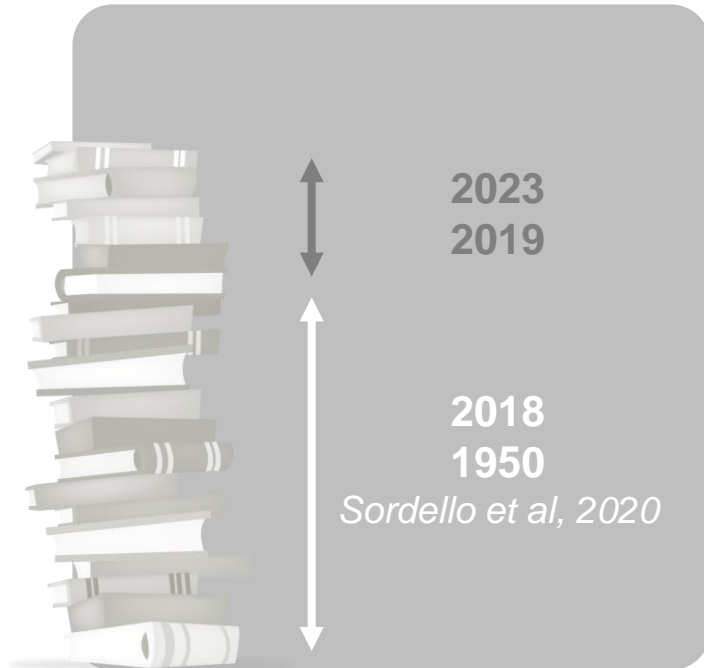


1^{ère} phase : Actualisation du corpus bibliographique

Synthèse bibliométrique



Actualisation Carte systématique



Revue systématique



2^{ème} phase : Revue systématique

Focus sur **un cluster outcome**



2^{ème} phase : Revue systématique

Focus sur **un cluster outcome**



2^{ème} phase : Revue systématique


Focus sur **un cluster outcome**



2^{ème} phase : Revue systématique



Analyse critique



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Traffic noise inhibits cognitive performance in a songbird

Alison Ozdinik¹, Megan A. Moellle, Alan Yan, Kaiti K. Brennan, Liliann Block, May Mariani-Smith, Jocelyn Yu, Same Shadrin, Gerie Nannenkamp and Christopher N. Templeton

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DOI: 10.1098/rspb.2020.2851

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Global Change Biology
Global Change Biology (2016) 22, 3349–3360, doi: 10.1111/gcb.13352

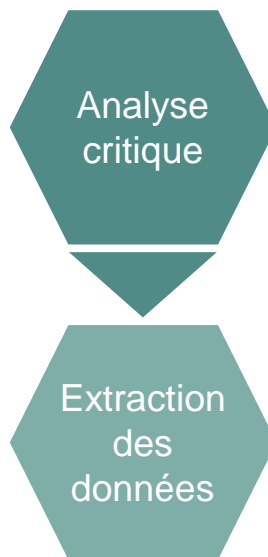
Reduced exposure reduces the response to impulsive in European seabass

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¹Biological Sciences, University of Bristol, Life Sciences Building, 24 Tyndall Avenue, Bristol BS8 1TQ, UK, ²Ecocian, 41, 34 000 Montpellier, France, ³Biosciences, College of Life and Environmental Sciences, University of Exeter, Stocker EX4 4QD, UK

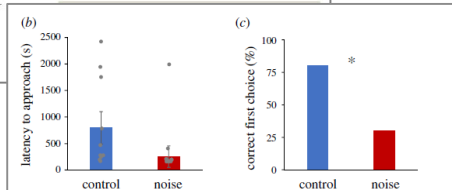
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2^{ème} phase : Revue systématique

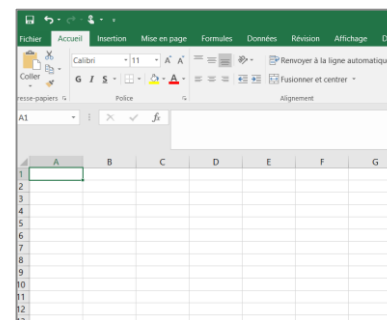


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 Research
 Cite this article: Osbrink A et al. 2021 Traffic noise inhibits cognitive performance in a songbird. *Proc. R. Soc. B* **288**: 20202851. <https://doi.org/10.1098/rspb.2020.2851>

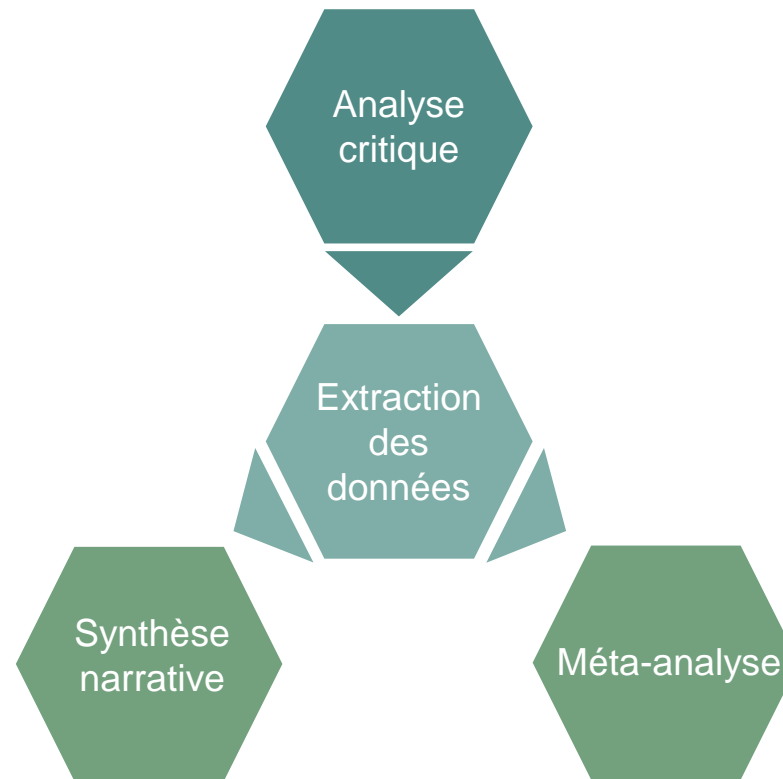
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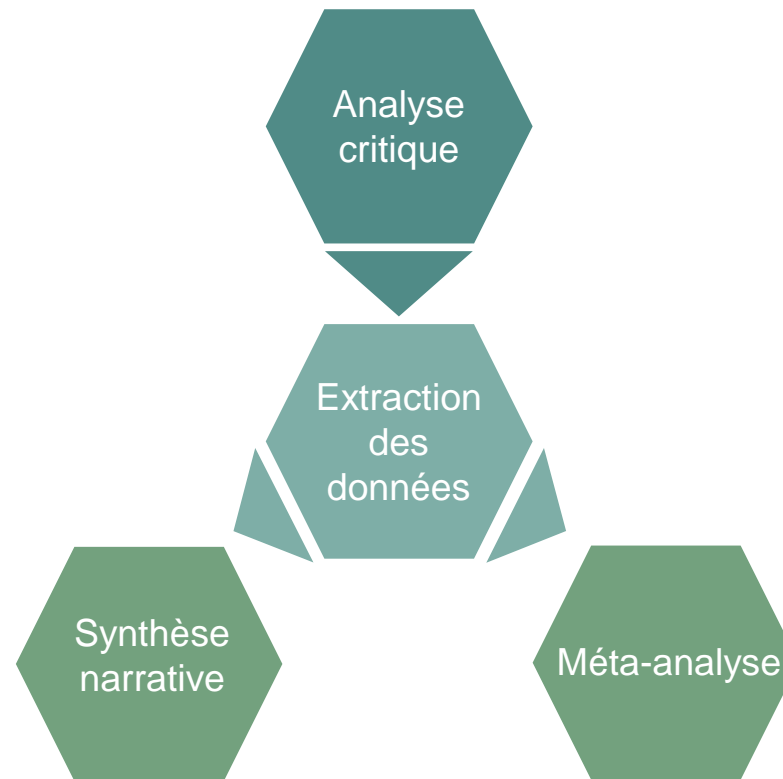
Taille échantillon
 Moyenne
 Ecart type



2^{ème} phase : Revue systématique



2^{ème} phase : Revue systématique

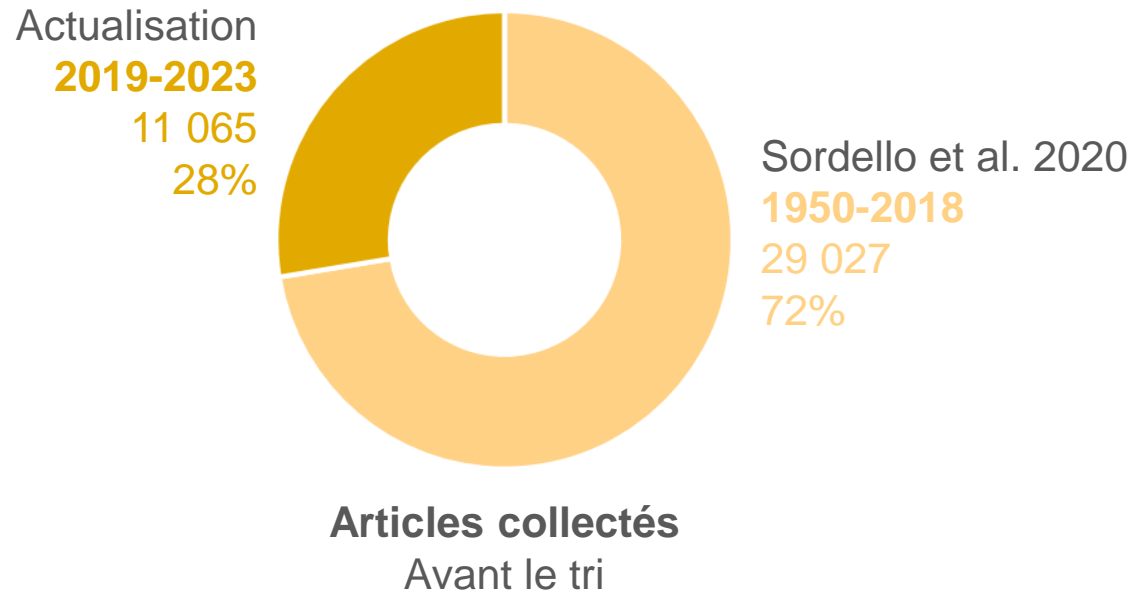


Bilan de l'actualisation

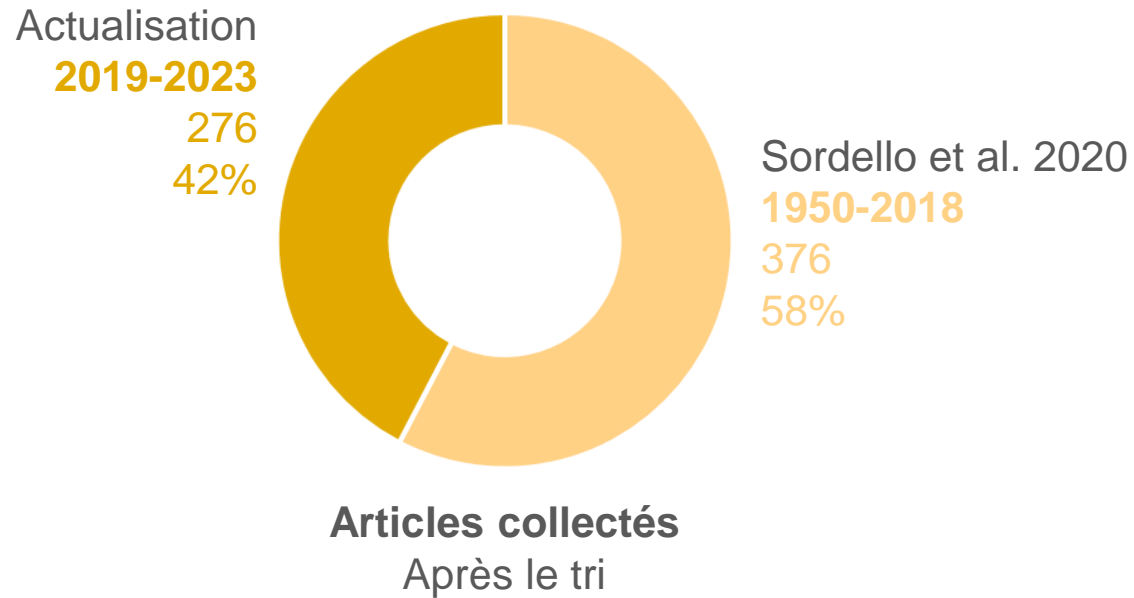
Où en sommes-nous ?



Bilan de l'actualisation



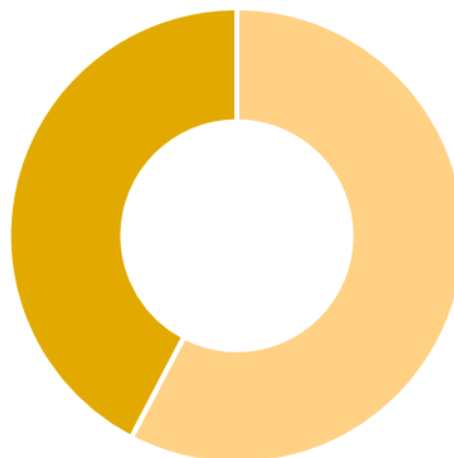
Bilan de l'actualisation





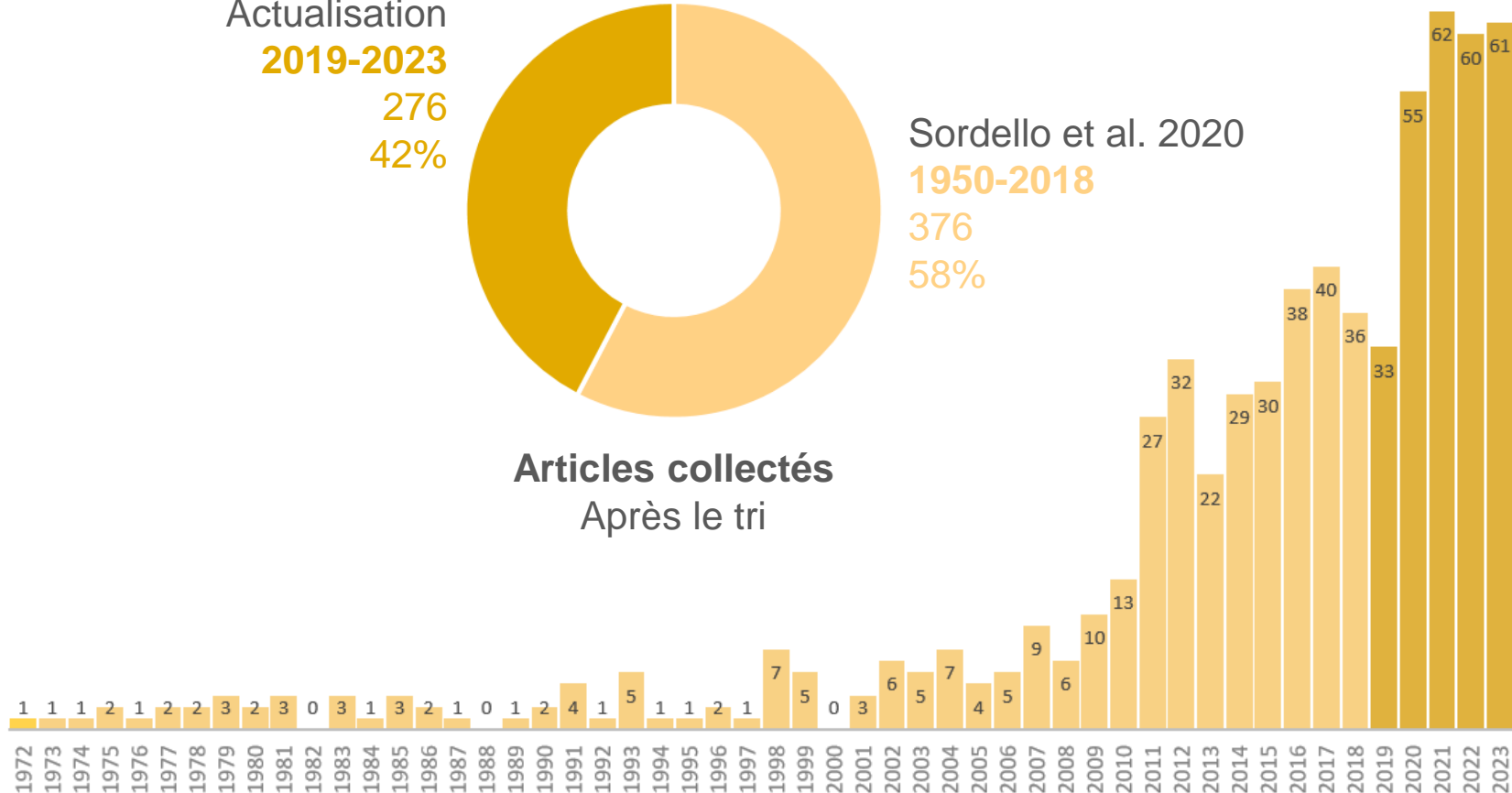
Bilan de l'actualisation

Actualisation
2019-2023
 276
 42%

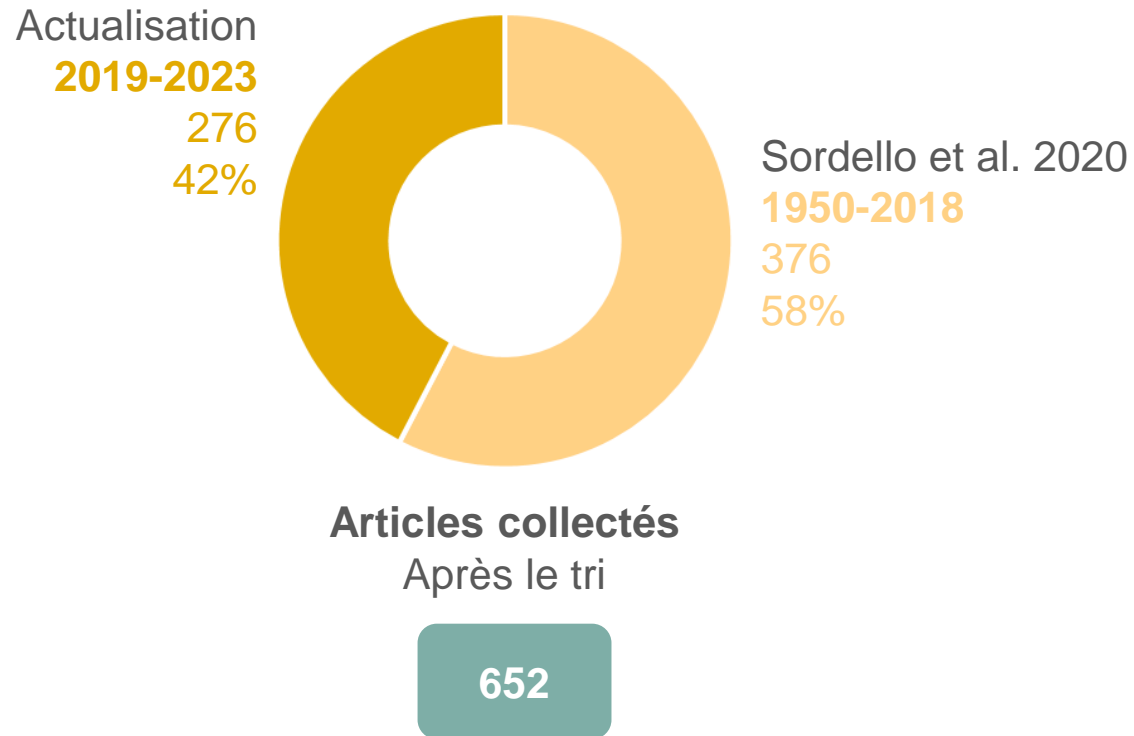


Sordello et al. 2020
1950-2018
 376
 58%

Articles collectés
 Après le tri



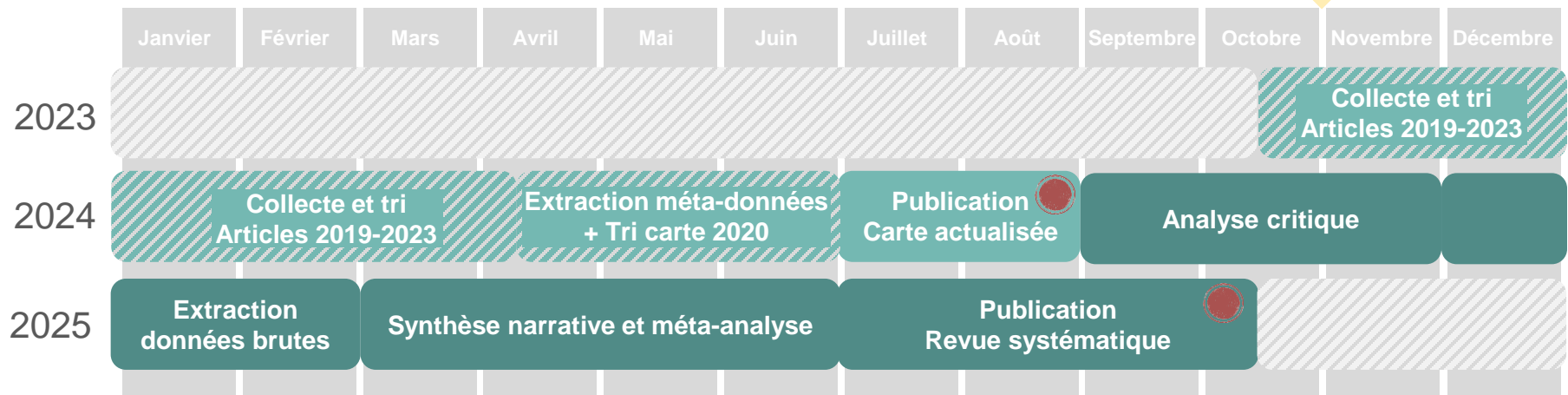
Bilan de l'actualisation



Calendrier



2 ans



- 1^{ère} phase : Carte systématique actualisée
- 2^{ème} phase : Revue systématique



Merci pour votre
attention

