

Database associated with

Meierhofer M.B., et al. (2023) Let's not wing it: Effective conservation of subterranean-roosting bats. *Conservation biology*.

Note this is an updated version of the database contained in:

Mammola S., et al. (2022) Towards evidence-based conservation of subterranean ecosystems. *Biological reviews*.

Explanation of database

In all columns, 'NA' (not available) was used when a column could not be filled.

Database: Source of the data. One of the following:

[DarkCideS database](#): Data collected in Tanalgo K.C., et al. (2022). DarkCideS 1.0, a global database for bats in karsts and caves. *Scientific Data*.

[Mammola_et_al_2022_BioRev](#): Data collected in Mammola S., et al. (2022) Towards evidence-based conservation of subterranean ecosystems. *Biological reviews*.

[New bat study](#): Data collected in Meierhofer M.B., et al. (2023) Let's not wing it: Effective conservation of subterranean-roosting bats. *Conservation biology*.

Source: One of the following: "[WoS](#)" (Web of Science), "[WoS alert](#)" (Web of Science alert activated from initial search terms) and "[Other](#)" (technical reports, grey literature, and papers included based on authors own knowledge).

ID: A unique ID for each study. ID is repeated in separate rows if multiple instances (species, conservation measures, action, etc.) apply to the same paper. For example, if the study focuses on different **Systems**, **Conservation_Action**, or uses different **Statistical_method**, the ID was repeated, one for each.

Title: Article or technical report title.

Journal: The journal where the paper is published of analogous information for technical reports.

Publication_type: The type of publication. One of "[Research](#)", "[Book](#)", "[Review](#)", "[Technical report](#)", "[Opinion](#)".

Year_publication: Year of publication.

doi: doi of the paper or, if missing, URL of the article or of the technical report.

Geography: Character string reporting the location of the study.

Higher_geography: One of the standard biogeographic regions: “Global”, “Nearctic”, “Neotropical”, “Afrotropical”, “Palearctic”, “Indomalayan”, “Oceanian”, and “Australasian”. If multiple biogeographic regions applied, they were separated with a semicolon. Example: “Nearctic ; Palearctic”.

Year: Year the study occurred. If the study spanned across years, separated years with a hyphen (e.g., 2010-2013).

Domain: One of “All”, “Terrestrial” or “Aquatic”.

System: One of:

“All” (Subterranean domain in its entirety)

“Anchialine/Marine” (Marine caves, saline water-fed systems, etc.)

“Artificial” (Mines, bunkers, blockhouses, etc)

“Cave” (Aerobic caves, Lava tube, Ice cave, etc.)

“Fissural systems” (including MSS, epikarst and other SSH sensu Culver et al., 2014),

“Groundwater” (Aquifers, springs, cenotes, submerged caves, subterranean rivers, etc.)

“Show cave” (Cave/sites opened for touristic purposes)

If multiple categories apply, separated with a semicolon. Example: “Artificial ; Cave”.

System_specific: Character string reporting the full details about the habitat.

Taxon_group: Seven higher groupings of the **Taxon** of focus provided within the literature.

Taxon: The taxon of focus. Used a high rank category (usually Order). If multiple Order were considered, the

row was multiplied using the same ID. If the study focused on the habitat/ecosystem level, “All” was used.

Genus_specific: Character string reporting full details about the genus (provided for bats only).

Taxon_specific: Character string reporting full details about the species or taxon (usually a binomial name).

Family: Bat Family (provided for bats only).

Impact: One of the following:

“All” (Discussing general measures with respect to all threats)

“Alien species” (Impacts due to alien species)

“Climate change” (Any impact related to alteration of climatic conditions)

“Surface habitat change” (Habitat alteration at the surface that feedback to affect subterranean systems; e.g. urbanization)

“Subterranean habitat change” (Any direct destruction of subterranean habitat; e.g. mining)

“Pollution” (Any impact related to contamination)

“Poaching” (Indiscriminate collection of species)

“Pathogens” (Any impact related to microorganisms; e.g. WNS)”

“Visitors” (Any impact related to tourism in show caves, recreational caving, etc.)

“None identified” (When proactive conservation measures are applied even if no threats have been identified).

Impact_specific: Character string reporting full details about the impact action.

Conservation_Group: Six higher classifications of the **Conservation_Action**. Used for graphical illustrations and discussion purposes.

Conservation_Action: One of (please mind the spelling and capital letters):

---> *Direct measure:*

“Eradication” (Any practice for contrasting the spread of alien species)

“Ex-situ” (Any conservation action of species outside natural habitats; e.g., raising a species in lab-condition)

for reintroduction)

“**Gating**” (Install and maintain gates/fences at the entrance to restrict public access, or any other action to closing the entrance)

“**Habitat creation**” (Any action to create new, previously not existing habitat; e.g. excavating an artificial refuge for bats).

“**Habitat restoration**” (Any action to restore pristine habitat; e.g., bioremediation of pollutants, removal of abandoned pitfall trap, restoration of habitat, restrict artificial lighting in caves)

“**Protected area**” (Any action to establish legal protection to the site)

“**Reintroduction**” (Any reintroduction of extinct species)

“**Regulate access**” (Any regulation of the access to the site; e.g., restrict recreational visitors in winter months, prohibiting access, regulating visits in show caves)

“**Decontamination**” (Any practice for removal of pathogens / hindering the spread of pathogens)

---> *Indirect measures:*

“**Education**” (Any dissemination/education program to raise awareness of the subterranean domain)

“**Legislation**” (Any legal action to protect biodiversity)

“**Monitoring**” (Any short- or long-term monitoring program of the quality/status of a species/habitat/ecosystem)

“**Prioritization**” (Any action to prioritize species/habitat/ecosystem for conservation, e.g. identifying hotspots of diversity to be protected, species delimitation to identify conservation priorities, fundamental questions to be answered to achieve better protection, etc.)

“**Risk assessment**” (Any assessment of the status of conservation/extinction risk of a species or habitat/ecosystem)

Conservation_Action_specific: Character string reporting full details about the conservation action.

Tested statistically: Did the authors use a statistical method/analysis to test the effect of the conservation/management action? One of: “**Yes**” or “**No**”. Note that if the article contains statistical methods, this does not necessarily mean that they have tested the effect of a specific conservation action.

[These variables in **red (*)** were filled when **Tested_statistically** was **yes**]

* **Response_variable / Response_group:** The response variable of interest (_variable) and its standardization in macrocategories (_group)

* **Predictor_variable / Predictor_group**: The independent variable of interest (_variable) and its standardization in macrocategories (_group)

* **Statistical_method**: The type of analysis used. Common analyses: “Pearson’s r”, “Spearman”, “t-test”, “ANOVA”, “LM”, “GLM”, “GAM”, “GLMM”, “GAMM”, “PCA”.

* **Test_statistic**: the specific measure. Common are “r” (for correlations), “t”, “z” (for GLM/M), etc.

* **df**: Degrees of freedom. Value entered.

* **N**: Sample size used in the analysis. Value entered.

Direction_of_effect: One of (please mind the spelling and capital letters): “Positive”, “Negative”, “Neutral”, and “Unknown”. If a statistical analysis is present, usually it is the sign of the statistical effect. If the study is not based on statistics, it was assigned empirically.

* **P-value**: Probability of an observed difference.

* **Pearson_r_conversion**: Would it be possible to convert test statistics to standardize Pearson’s r for a meta-analysis? One of: “convertible” or “not convertible”.

Bat_analysis: Whether or not it is usable for the meta-analysis Meierhofer M.B., et al. (2023) Let’s not wing it: Effective conservation of subterranean-roosting bats. *Conservation biology*.

Notes: Any notes/comments about the article that are of interest in interpretation.

Assignment: Coauthor who extracted the information from the article.

Validated: Coauthor who double checked the entry.