Conducting Systematic Literature Searches in Veterinary Medicine

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The Search Continuum

The nature and purpose of your project will determine whether you need to do a focused or comprehensive search, or something in between. Questions to ask yourself to help decide what kind of search to do:

- Do you just need the key papers on your topic?
- How essential is it to ensure you are not duplicating existing research? Ie. to retrieve all relevant articles on your topic?
- Do you need to retrieve only published literature or also grey, unpublished studies and reports?

A Focused Search
- Uses databases that index the core literature required for your project
- For most veterinary medicine projects CAB Abstracts and PubMed/MEDLINE cover the core literature
- Additional databases may need to be searched depending on your topic
- Uses strategies to focus a search (see section 4.4)

A Comprehensive Search
- For projects that require a more extensive literature search (dissertation, major research proposal to funding body), uses databases that index literature in related disciplines and index more obscure journals, and possibly also some grey literature such as conference proceedings, government documents and professional association reports
- These databases will often yield fewer results for time spent searching
- Uses a mix of focused and broadening strategies
An Exhaustive Search

- For projects that require an exhaustive literature search (systematic review). May include location of hard to find grey literature, research in progress, consultations with authors of unpublished studies (unpublished clinical trials) and cited reference searches of key authors
- Yield even fewer results for time spent searching, so you should weigh the likelihood of finding additional relevant material against the time spent
- Uses strategies to broaden a search (see section 4.3)

Standards for Conducting Systematic Literature Searches

Below are the two best practice standards for conducting exhaustive literature searches. Although these are designed for medicine, many of the principles are also applicable to veterinary medicine.

Cochrane Collaboration Handbook (gold standard for conducting systematic reviews)

Institute of Medicine Finding What Works in Health Care: Standards for Systematic Reviews

The Search Process

1. Translate your research question(s) into search question(s)

- State your research topic as a question or series of concise questions
- From these question(s), parse out the key concepts that must be present in your search results. Usually you’ll have 2 to 4 key concepts. These concepts will form the basis of your search strategy
- Define any limits, such as species, research study design, publication date, and language that you want to apply to your search results. For comprehensive searches, it is wise to apply limits with caution, since you may inadvertently exclude relevant papers by doing this prematurely

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Search Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>metaphylaxis</td>
<td>metaphylactic OR metaphylaxis OR prophylactic OR prophylaxis AND</td>
</tr>
<tr>
<td>beef cattle</td>
<td>cattle OR bovine AND</td>
</tr>
<tr>
<td>antimicrobial resistance</td>
<td>antimicrobial resistance OR antibiotic resistance OR AMR AND</td>
</tr>
<tr>
<td>feedlots</td>
<td>feedlot OR concentrated animal feeding operation OR CAFO</td>
</tr>
</tbody>
</table>
For clinical comparative effectiveness research, use the **PICOS** framework below

<table>
<thead>
<tr>
<th>PPICOS Clinical Question Components</th>
<th>Your Question</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>P = Population or Species</strong></td>
<td>Among ... cattle</td>
</tr>
<tr>
<td><strong>P = Problem</strong></td>
<td>With suspected Johne’s Disease</td>
</tr>
<tr>
<td><strong>I = Intervention</strong></td>
<td>Does.... the ELISA test</td>
</tr>
<tr>
<td>Main intervention you are considering</td>
<td>Compared to... the Complement Fixation Test</td>
</tr>
<tr>
<td>- Treatment, diagnostic or screening test, prognostic factor, adverse drug reaction or environmental exposure</td>
<td></td>
</tr>
<tr>
<td><strong>C = Comparison Intervention</strong> (if appropriate)</td>
<td></td>
</tr>
<tr>
<td>Main alternative intervention</td>
<td></td>
</tr>
<tr>
<td>- Gold standard treatment or diagnostic test, placebo / no treatment</td>
<td></td>
</tr>
<tr>
<td><strong>O = Clinical Outcome</strong></td>
<td>Affect... accurately screen for this disease</td>
</tr>
<tr>
<td>What trying to accomplish, measure, improve, or affect</td>
<td></td>
</tr>
<tr>
<td>Eg. Reduced mortality or morbidity, pain control, accurate and timely diagnosis, lower blood pressure</td>
<td></td>
</tr>
<tr>
<td><strong>S = Study Design</strong></td>
<td></td>
</tr>
<tr>
<td>Research study design – randomized controlled trial, systematic review</td>
<td></td>
</tr>
</tbody>
</table>

2. Develop Search Terms

For each key concept in your search question, identify search terms. You may need to modify these terms after you have done some preliminary searching.

- Synonyms or similar terms
- Acronyms (eg. BSE, CFT, CAFO, AMR)
- Spelling variants (anaemia or anemia)
- Brand and generic drug names
- Cultural variants (feedlots, concentrated animal feeding operation)
- Lay and medical terms (mad cow disease, bovine spongiform encephalopathy)
3. Select Databases and Search Engines

Identify and prioritize the databases needed to locate the types of literature you need:

3.1 For Peer Reviewed Journal Literature

- Access databases at UC Library website: library.ucalgary.ca Search Collections > Databases by Subject
- Check the Veterinary Medicine, Biological Sciences, Development Studies, Environmental Science and Medicine links
- No one database is comprehensive enough to index all literature on a given topic, so you will usually need to search more than one database
- The “best” databases will vary depending on your topic, how comprehensive your search needs to be and how much time you have to search

3.2 For Grey Literature

Grey literature is "information produced on all levels of government, academics, business and industry in electronic and print formats not controlled by commercial publishing". Grey literature is often not peer reviewed in the same way that most journal literature is, but is often has credible, clinical and scientific information.

3.2.1 Find Conference Proceedings using

- CAB Abstracts (for veterinary medicine conferences)
- International Veterinary Information System (IVIS) http://www.ivis.org/proceedings/toc3_proceedings.asp Free, but registration is required
- Web of Science
- Scopus
- BIOSIS Previews (for basic sciences conferences)
- Google the conference website
- University of Calgary Library Catalogue (we collect conference proceedings selectively)

3.2.2 Find Dissertations and Theses using

- Proquest Dissertations & Theses (PDF of full-text dissertations & theses published after 1997; can take 1 year until appears in Proquest)
- Theses Canada Portal http://www.collectionscanada.gc.ca/thesescanada/index-e.html
• University of Calgary Archives in-house theses database
  http://archives.ucalgary.ca/theses

• If the full-text of the theses or dissertation is not available in the above sources, place an interlibrary loan request at: http://library.ucalgary.ca/request-item

• If the Library is not able to obtain an interlibrary loan, you can purchase copies of theses and dissertations from Proquest Dissertations Express with credit card at: http://disexpress.umi.com/dxweb

3.2.3 Find Government Publications using

  o Canadian Research Index http://library.ucalgary.ca/rdd-subject?s=79
  o Google
  o University of Calgary Library Catalogue

Below is a selected list of provincial, federal and international organizations that post their publications and reports on their websites.

AgEcon
http://ageconsearch.umn.edu/
Agricultural economics repository sponsored by the Department of Applied Economics and the University Libraries at the University of Minnesota and the American Agricultural Economics Association

Agriculture and Agri-Food Canada

AGRIS
http://www.fao.org/Agris/
International literature database from the Food & Agriculture Organization of the United Nations. Includes all aspects of agricultural sciences in developing countries, including grey literature

Alberta Agriculture & Rural Development
http://www.agric.gov.ab.ca/app21/rtw/index.jsp

Canada Food Inspection Agency
http://www.inspection.gc.ca/eng/1297964599443/1297965645317

Centers for Disease Control & Prevention (US)
http://www.cdc.gov/

Food and Agriculture Organization of the UN (FAO)
http://www.fao.org/

Health Canada
http://www.hc-sc.gc.ca/index-eng.php

International Livestock Research Institute
http://www.ilri.org/Publications
http://www.ilri.org/ResearchOutputs
http://www.ilri.org/InfoCentre
OIE – World Organization for Animal Health
http://www.oie.int/eng/en_index.htm
   World Animal Health Information Database (WAHID)
   http://www.oie.int/wahis_2/public/wahid.php/Wahidhome/Home

Public Health Agency of Canada

US Department of Agriculture
http://www.usda.gov/wps/portal/usdahome
   US Animal & Plant Health Inspection Service (APHIS)
   http://www.aphis.usda.gov/subjects/animal_health/
   US Foreign Agricultural Service
   http://www.fas.usda.gov

World Health Organization
http://www.who.int/en/

3.2.4 Find Data & Statistics using

   o UC Library Spatial & Numeric Data Services
     http://library.ucalgary.ca/sands

   o Google

CDC National Center for Health Statistics (USA)
http://www.cdc.gov/nchs/
http://www.cdc.gov/DataStatistics/

Consultative Group on International Agricultural Research (CGIAR)
http://www.cgiar.org/resources/

Data.gov.uk
http://data.gov.uk/data/search?q=veterinary+or+animal+or+pet&page=2

Europe Public Data
http://publicdata.eu/

Statistics Canada
http://www.statcan.gc.ca/start-debut-eng.html

World Development Index (World Bank)

World Health Organization Data & Statistics
http://www.who.int/research/en/

UN Data
http://data.un.org/
3.2.5 Find Professional Organization Reports using

- Google
- Google Scholar

The sites below have extensive lists of professional organizations in animal health and veterinary medicine.

Animal Health Organizations (Canadian Veterinary Medical Association)
http://canadianveterinarians.net/links.aspx

Canada Animal Health Coalition
http://www.animalhealth.ca/Links.aspx

3.2.6 Find Unpublished & ongoing clinical trials using

Cochrane Collaboration Handbook - Chapter 6.2.3 Unpublished and ongoing studies
http://www.cochrane-handbook.org/

4. Use Effective Search Strategies

The key concepts from your search question(s) form the building blocks of your search strategy. How you enter search terms into a database, and whether you should do a textword search or a subject heading search will vary depending on the nature of your project and the database search software.

Conduct a preliminary scoping search in a one or two core databases to refine your search question(s), your search terms and search strategy, as well as your choice of databases.

For the examples below the search question is: Among cattle, is the ELISA test as compared with the complement fixation test most accurate in detecting Johne’s disease?

4.1 Subject Heading Search

Searches only subject headings (index terms) assigned by indexer, so increases relevance of search results because it takes advantage of intellectual analysis of article content done by the indexer.

Advanced Search Mode (OVID databases) or Thesaurus (EBSCO databases)

Advantages
- Enables searcher to do precise searches – best choice when a systematic, comprehensive search is required
- Enables use of Explode, Focus and Subheadings features

Disadvantages
- Takes longer to learn to use this search mode effectively
In OVID Advanced Search mode, select a *separate* subject heading to represent each of your key concepts, then combine them with AND.

1 exp cattle/
2 Elisa/
3 complement fixation tests/
4 Mycobacterium avium subsp. paratuberculosis.od. OR paratuberculosis.sh.
5 1 AND 2 AND 3 AND 4

4.2 Textword Search

Searches for any occurrence of search terms (word match), usually in the title and abstract of the database record. In textword searches, you need to search for all the sub-concepts that comprise a topic – eg. for disease prevention, also search for immunization, infection control, disease surveillance and so on.

**OVID Multi-Field Search Mode, Scopus, Web of Science, EBSCO databases**

*Advantages*
- Multiple search boxes facilitate textword searches

*Disadvantages*
- Greater likelihood of irrelevant results than in a subject heading search
- Cannot use *Explode, Focus* and *Subheadings* in this search mode

In databases where you have several search boxes, type the search terms for each key concept in a *separate search box* as follows:

**Search | Advanced Search | Find Citation | Search Tools | Search Fields | Multi-Field Search**

1 Resource selected | Hide | Change

1 CAB Abstracts 1910 to 2012 Week 46

<table>
<thead>
<tr>
<th>cattle OR bovine</th>
<th>All Fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>AND Elisa OR enzyme linked immunosorbent assay</td>
<td>All Fields</td>
</tr>
<tr>
<td>AND complement fixation test* OR CFT</td>
<td>All Fields</td>
</tr>
<tr>
<td>AND john* disease OR paratuberculosis</td>
<td>All Fields</td>
</tr>
</tbody>
</table>

**Default PubMed Search Mode or Advanced Search Mode**

*Advantages*
- Quick, easy to use
- Automatic mapping to subject headings ensures relevant results
- Does combined subject heading and textword search

*Disadvantages*
- Searcher has less control over search parameters, so search is less precise than subject heading search
4.3 Strategies to Broaden Your Search

This first group of strategies can be used in almost any research database:

- Reframe your question to make it broader and more general
- User broader, more general subject headings and textwords
- Remove the least important concept from your search
- Add synonyms for each search concept (using the Boolean OR). Check relevant records for subject headings or textwords, then use these in your search
- In textword searches, use the truncation symbol at the end of word stems to retrieve word variations
  Type: therap$ in OVID or therap* in PubMed to retrieve therapy, therapist, therapeutic
- Use both subject heading and title/abstract textwords for the broadest search
- Search in more than one database

The following strategies can be used only in PubMed / OVID databases (CAB Abs, MEDLINE):

- Use the Explode feature
- Apply fewer, or no Limits to your search results
- Select more or All Subheadings (Medline Advanced or PubMed MeSH Database only)
- In OVID databases do not select the Focus option and in PubMed do not select Restrict Search to Major Topic Headings
- Use the Related Citations feature in PubMed, or the Find Similar feature in OVID databases

4.4 Strategies to Focus Your Search

This first group of strategies can be used in almost any research database:

- Reframe your question to make it more specific
- Use more specific subject headings and textwords
- Add another concept to your search (using the Boolean AND)
- Use less or no synonyms within a search concept
- In textword searches, use less or no truncation symbols
- Use either subject heading or textwords but not both
- Search only in the core database(s) for your topic

The following strategies can be used only in PubMed / OVID databases (CAB Abs, Medline):

- Do not use the Explode feature
- Apply more Limits to your search results
- Select fewer Subheadings (OVID Medline Advanced)
- Select the Focus option (OVID) or the Restrict Search to Major Topic Headings (PubMed)

4.5 Search Norms

- Find out how the articles you already have are indexed, then use relevant subject headings in your search
- Avoid or use the Boolean NOT carefully. You might NOT out records you do want
- Make sure you know the definitions of the terms you are using
- Search using opposites for some topics (eg. if you are interested in “penicillin sensitivity”, make sure you search for “penicillin resistance” also)
5. Save Your Search Strategies

Most databases allow you to save your search strategies and re-run them later. For example:

CAB Abstracts, MEDLINE, Global Health (OVID)
- *Save Search History/View Saved* feature allows you to save search strategies, rerun them later, and send others a URL link to share search results

PubMed

6. Save & Format Your References

Most databases allow you to directly export references to references management software programs such as Refworks and EndNote.

6.1 Reference Management Software

- **RefWorks** [http://library.ucalgary.ca/refworks](http://library.ucalgary.ca/refworks)
  - U of C has site license, so free for students, faculty, staff
  - Web-based, so accessible from any computer with internet access
  - Easy to learn

- **EndNote** [http://endnote.com/](http://endnote.com/)
  - Must purchase your own software at UC MicroStore $100
  - Standalone software loaded on your computer
  - More functionality than RefWorks – best for researchers with many records, multiple projects

- **Mendeley** [http://www.mendeley.com/](http://www.mendeley.com/)
  - Free on web, easy to learn
  - Little to no client support from producer

- **Comparison of programs** [http://library.wisc.edu/citation-managers/comparison.html](http://library.wisc.edu/citation-managers/comparison.html)

- Free, drop-in citation management software workshops [http://library.ucalgary.ca/hsl](http://library.ucalgary.ca/hsl)

6.2 Citation Style Guide

Uniform Requirements for Manuscripts Submitted to Biomedical Journals [http://www.icmje.org/index.html](http://www.icmje.org/index.html)

7. Report Your Search

A growing number of journals in both human health and animal health literature require authors to follow standards to report literature searches for review articles in sufficient detail to enable others to replicate the search.

Equator Network Research Reporting Standards
http://www.equator-network.org/
List of current human and animal health research reporting standards, including literature search reporting

7.1 PRISMA Checklist standard for reporting systematic reviews
http://www.prisma-statement.org/2.1.2%20-%20PRISMA%202009%20Checklist.pdf
Items 7 and 8

- Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched
- Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated

7.2 Cochrane Collaboration Handbook
http://www.cochrane-handbook.org/
Section 6.6 Documenting & Reporting the Search Process

Report the search process in the Methods section of the article as follows:
- List all databases searched
- Note the dates of the last search for each database AND the period searched for each database
- Note any language or publication status restrictions
- List grey literature sources
- List individuals or organizations contacted
- List any other sources searched (e.g. reference lists)

- Full search strategies for each database should be included in an Appendix of the review

7.3 Institute of Medicine Finding What Works in Health Care: Standards for Systematic Reviews

Standard 3.4 Document the search
- Provide a line-by-line description of the search strategy, including the date of every search for each database, web browser
- Document the disposition of each report identified including reasons for their exclusion if appropriate
8. Publish Your Research

Instructions to Authors for Veterinary Medicine Journals

- Connect to the journal via the UC Library Journals list http://library.ucalgary.ca/journals
- Or Google the journal name and “instructions to authors”

Journal Citation Reports

- Check this database for the impact factor of journal titles in various disciplines
- You can select more than one subject category, then generate a combined list
- Access via UC Library Databases by Subject http://library.ucalgary.ca/databases

U of C Libraries and Cultural Resources Open Access Author’s Fund

- http://library.ucalgary.ca/open-access-authors-fund
- Fund helps pay fees charged by publishers for articles to be published in open access journals

References

1. Grey Literature Network Service


   http://utpjournals.metapress.com.ezproxy.lib.ucalgary.ca/content/t038747107600197/?p=be26fb6c30fe4fb7a4954dbd2bc2a34d&pi=0#Supplemental

   http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1324783/

   http://library1.ucalgary.ca/u.php?id=3257


## Appendix: Core Databases for Veterinary Medicine

<table>
<thead>
<tr>
<th>Database Name</th>
<th>CAB Abstracts (OVID)³</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Producer</strong></td>
<td>CABI Publishing, an international, not-for-profit organization that engages in development projects and research and produces scientific publications in agriculture and the environment</td>
</tr>
</tbody>
</table>
| **Subjects Indexed**| o Veterinary medicine, animal agriculture, environment, applied economics, food science and nutrition, helminthology, microbiology, parasitology, virology  
  o International scope, including non-English language publications |
| **Document Types**  | Scholarly journals, books, conference proceedings, theses, dissertations, reports |
| **Journals Indexed**| [Link](http://www.cabi.org/default.aspx?page=1016&site=170&pid=125&xslttab=2&newtitleonly=0&letter=*) |
| **Strengths**       | o Most comprehensive coverage of veterinary medicine literature  
  o Coverage of non-journal grey literature  
  o International, non-English language coverage |
| **Limitations**     | o Search platforms for CAB not as easy to use as PubMed  
  o Not indexed with same depth / consistency as PubMed, so retrieval not as granular or consistent as PubMed |

<table>
<thead>
<tr>
<th>Database Name</th>
<th>PubMed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Producer</strong></td>
<td>National Library of Medicine (NLM), United States</td>
</tr>
</tbody>
</table>
| **Subjects Indexed**| o Biomedicine and human health, *some aspects* of allied disciplines in the life sciences, behavioral sciences, chemical sciences, bioengineering, biology, environmental science, marine biology, animal science, biophysics and chemistry  
| **Document Types**  | o Mainly scholarly journals  
  o 50% of citations in PubMed published in USA; 90% published in English language |
## Journals Indexed

<table>
<thead>
<tr>
<th>Database Name</th>
<th>Google Scholar [4]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Producer</td>
<td>Google Inc., Mountainview, California (commercial organization)</td>
</tr>
</tbody>
</table>
| Subjects Indexed | Not formally disclosed in any publicly available documents  
|                | Sciences, particularly medicine, and to some degree the social sciences |
| Document Types | Full-text journal articles, conference proceedings, technical reports, preprints, theses, books, government documents and selected web pages from both commercial publishers and open access publishers. Includes content from PubMed. |
| Journals Indexed | Not disclosed |

## Strengths

- **Search interface easy to use**
- **Consistent, in-depth indexing enables precision retrieval** from database
- Advanced search features maximize searcher control over search outcomes
- Covers medicine, basic sciences and core veterinary medicine literature so enables multidisciplinary searching

## Limitations

- **Indexes less veterinary medicine journals** than CAB Abstracts
- **Very limited coverage of grey literature** (such as conference proceedings) and non-English language literature

## Database Name

Google Scholar [4]

Producer: Google Inc., Mountainview, California (commercial organization)

Subjects Indexed: Not formally disclosed in any publicly available documents  
Sciences, particularly medicine, and to some degree the social sciences

Document Types: Full-text journal articles, conference proceedings, technical reports, preprints, theses, books, government documents and selected web pages from both commercial publishers and open access publishers. Includes content from PubMed.

Journals Indexed: Not disclosed

### Strengths

- **Fast, easy** to search
- Organizes search results by relevance
- **Breadth of coverage** useful for background or preliminary, scoping searches. Allows multidisciplinary searching.
- **“Cited by”** feature tracks times item was cited, but less comprehensive tracking than Science Citation Index

### Limitations

- **Lack of transparency regarding source content or frequency of updates**, so difficult to determine how comprehensive your search is
- Results ranked by citation frequency, so **creates bias toward older literature**
- **Lack of advanced search features** eg MeSH searching, exploding, publication type limits
<table>
<thead>
<tr>
<th>Database Name</th>
<th>Scopus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Producer</td>
<td>Elsevier (commercial publisher)</td>
</tr>
<tr>
<td>Subjects Indexed</td>
<td>Extensive multidisciplinary content</td>
</tr>
<tr>
<td></td>
<td>o Health sciences – 6800 titles</td>
</tr>
<tr>
<td></td>
<td>o Life sciences – 4300 titles</td>
</tr>
<tr>
<td></td>
<td>o Social sciences – 5300 titles</td>
</tr>
<tr>
<td>Document Types</td>
<td>Peer reviewed journals (18,000), conference proceedings (3.6 million papers), 435 million scientific web pages, 23 million patents</td>
</tr>
<tr>
<td>Strengths</td>
<td>o Extensive multidisciplinary content</td>
</tr>
<tr>
<td></td>
<td>o More extensive journal coverage than Web of Science</td>
</tr>
<tr>
<td></td>
<td>o Citation tracking and analysis (cited references)</td>
</tr>
<tr>
<td></td>
<td>o Scirus scientific web content in Web search tab</td>
</tr>
<tr>
<td>Limitations</td>
<td>o Subject heading search not supported</td>
</tr>
<tr>
<td></td>
<td>o Indexes less conference proceedings than Web of Science</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Database Name</th>
<th>Web of Science Citation Indexes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Producer</td>
<td>Thomson Reuters (commercial publisher)</td>
</tr>
<tr>
<td>Subjects Indexed</td>
<td>Multi-disciplinary content covering over 14,000 journals from sciences (8060 titles), social sciences (2697 titles) in 45 languages</td>
</tr>
<tr>
<td>Document Types</td>
<td>Primarily journal articles, over 110,000 conference proceedings</td>
</tr>
<tr>
<td>Publication Dates</td>
<td>o Science Citation Index 1899-present</td>
</tr>
<tr>
<td></td>
<td>o Social Science Citation Index 1898-present</td>
</tr>
<tr>
<td></td>
<td>o Conference proceedings Science &amp; Social Science 1990-present</td>
</tr>
</tbody>
</table>
### Strengths

- Multidisciplinary content
- **Cited reference** search feature
- **More extensive coverage of conference proceedings** than Scopus

### Limitations

- Less journals indexed than Scopus
- **Citation tracking search not as user friendly** as Scopus

### Database Name: Wildlife & Ecology Studies Worldwide (EBSCO)

<table>
<thead>
<tr>
<th>Producer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most records in database are from <em>Wildlife Review Abstracts</em>, a print publication formerly produced by the U.S. National Biological Service</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subjects Indexed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant coverage of literature on wild mammals, birds, reptiles, and amphibians</td>
</tr>
<tr>
<td>Major topic areas include studies of individual species, habitat types, hunting, economics, wildlife behaviour, management techniques, diseases, ecotourism, zoology, taxonomy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Document Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scholarly journals, books, conference proceedings, theses and dissertations, reports</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Journals Indexed</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Strengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coverage of hard to find wildlife literature</td>
</tr>
<tr>
<td>Coverage of grey literature (see Document Types above)</td>
</tr>
</tbody>
</table>

### Database Name: Environment Complete (EBSCO)

<table>
<thead>
<tr>
<th>Subjects Indexed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, ecosystem ecology, energy, renewable energy sources, natural resources, marine &amp; freshwater science, geography, pollution &amp; waste management, environmental technology, environmental law, public policy, social impacts, urban planning</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Document Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primarily scholarly journals, but includes a few books and conference proceedings</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Journals Indexed</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.ebscohost.com/academic/environment-complete">http://www.ebscohost.com/academic/environment-complete</a></td>
</tr>
</tbody>
</table>
**Database Name** | **Global Health**
--- | ---
**Producer** | CABI Publishing, an international, not-for-profit organization that engages in development projects and research and produces scientific publications in agriculture and the environment

**Subjects Indexed** | o Human and veterinary public health including zoonotic disease, infectious diseases, parasitology, biomedical life sciences, nutrition, tropical medicine, international health, environmental and occupational health

**Document Types** | Full-text journal articles, conference proceedings, technical reports, theses, books, newsletters, bulletins, annual reports, handbooks, discussion papers, and patents


**Strengths** | o Coverage of both **medicine and veterinary public health**
  o **Coverage of non-journal grey literature**
  o **International, non-English language** literature coverage

**Limitations** | o OVID search platform **not as easy to use as PubMed**, so requires time investment to learn to search effectively
  o **Not indexed with same depth / consistency** as PubMed, so retrieval not as granular or consistent as PubMed