

Appendix A: Search details

- Including:
- A.1. Database searches
 - A.2. Website searches
 - A.3. Organisational searches

A.1: Database searches:

Database (date searched)	Search string(s)	Number of hits
Agricola (21/7/10)	<p>(database has a search term limit and "?" is the wildcard)</p> <p>Search 1 in articles (Stream OR River OR Catchment OR brook OR creek OR burn OR fluvial OR "source area" OR gravel) AND (Liming OR lime? OR chalk? OR "calcium carbonate" OR dolomite) AND (Fish? OR Salmo? OR Trout OR Marcroinvertebrate? OR Invert? OR macrofauna? OR meiofauna OR insect? OR Ephemeroptera OR Plecoptera OR Trichoptera OR Mollus? OR crustacea? OR microcrustacea? OR bivalve? OR gastropod)</p> <p>Search 2: in articles (Stream OR River OR Catchment OR brook OR creek OR burn OR fluvial OR "source area" OR gravel) AND (Liming OR lime? OR chalk? OR "calcium carbonate" OR dolomite) AND (zooplankton OR coleopteran OR chironomid)</p> <p>Search 3: in books and same search terms as search 1 Search 4: in books and same search terms as search 2</p>	Total hits: 71
CAB abstracts (30/7/10)	<p>Database only allows use of simple brackets so search was done for each combination of subject, intervention and outcome separately and then combined</p> <p>Search was effectively: (Stream OR River OR Catchment OR brook OR creek OR burn OR fluvial OR source area OR gravel) AND (Liming OR lime* OR chalk* OR calcium carbonate OR dolomite) AND (Fish* OR Salmo* OR Trout OR Marcroinvertebrate* OR Invert* OR macrofauna OR meiofauna OR insect* OR Ephemeroptera OR Plecoptera OR Trichoptera OR Mollus* OR crustacea* OR microcrustacea* OR bivalve* OR gastropod OR zooplankton OR coleopteran OR chironomid)</p>	Total hits: 331
CSA Illumina (22/07/10)	<p>Subject Area: Natural Sciences Subject Area Query: (Stream OR River OR Catchment OR brook OR creek OR burn OR fluvial OR source area OR gravel) AND (Liming OR lime* OR chalk* OR calcium carbonate OR dolomite) AND (Fish* OR Salmo* OR Trout OR Marcroinvertebrate* OR Invert* OR macrofauna OR meiofauna OR insect* OR Ephemeroptera OR Plecoptera OR Trichoptera OR Mollus* OR crustacea* OR microcrustacea* OR bivalve* OR gastropod OR zooplankton OR coleoptera* OR chironomid)</p>	Hits: 2037 (once duplicates were removed total hits only 1513)

<p>Conservationevidence.com (20/7/10)</p>	<p>(Does not allow complex search strings): Stream + liming Stream + lime* stream + chalk* stream + "calcium carbonate" stream + dolomite</p>	<p>Hits: 1</p>
<p>copac (28/7/10)</p>	<p>Searched liming with each of stream, river, catchment, brook, creek, burn, fluvial, source area, gravel (only river, stream, catchment and source area gave any hits).</p> <p>When searched lime* river 155599 hits were got and chalk* river got 142498 hits. For both searches the first 25 were all irrelevant so search was restricted to first search above</p> <p>First 25 of limed and river also irrelevant, no relevant hits from searching dolomite and river or calcium carbonate and river.</p> <p>So 23 citations downloaded into endnote.</p>	<p>Total 23 hits</p>
<p>Directory of open access journals (21/07/10)</p>	<p>Search string (database does not allow complex search strings): Stream and liming Stream and lime* Stream and chalk* Stream and calcium carbonate Stream and Dolomite River and liming River and lime* River and chalk* River and calcium carbonate River and dolomite Catchment and liming Catchment and lime* Catchment and chalk* Catchment and calcium carbonate Catchment and dolomite Brook and liming Brook and lime* Brook and chalk* Brook and calcium carbonate Brook and dolomite Creek and liming Creek and lime* Creek and chalk* Creek and calcium carbonate Creek and dolomite Burn and liming Burn and lime* Burn and chalk* Burn and calcium carbonate Burn and Dolomite Fluvial and liming Fluvial and lime* Fluvial and chalk Fluvial and calcium carbonate Fluvial and dolomite Source area and liming Source area and lime* Source area and chalk*</p>	<p>Hits (once duplicates removed): 41</p>

	<p>Source area and calcium carbonate Source area and dolomite Gravel and liming Gravel and lime* Gravel and chalk* Gravel and calcium carbonate Gravel and dolomite</p>	
<p>Index to theses online (23/7/10)</p>	<p>The search engine appears not to be able to take larger searches so search terms used: (Stream OR River OR Catchment OR brook OR creek OR burn OR fluvial OR "source area" OR gravel) AND (Liming OR lime* OR chalk* OR "calcium carbonate" OR dolomite)</p>	<p>Hits 342</p>
<p>Science Direct (21/07/10)</p>	<p>Search string: ((Stream OR River OR Catchment OR brook OR creek OR burn OR fluvial OR source area OR gravel) AND (Liming OR lime* OR chalk* OR calcium carbonate OR lime well OR pelletised lime OR powdered lime OR lime stabilised sewage sludge OR dolomite) AND (Fish* OR Salmo* OR Trout OR Marcroinvertebrate* OR Invert* OR macrofauna OR meiofauna OR insect* OR Ephemeroptera OR Plecoptera OR Trichoptera OR Mollus* OR crustacea* OR microcrustacea* OR bivalve* OR gastropod OR zooplankton OR coleopteran OR chironomid) AND (Abundance OR diversity OR richness))</p>	<p>Hits: 131</p>
<p>Scopus (4/8/10)</p>	<p>Search term: TITLE-ABS-KEY((stream OR river OR catchment OR brook OR creek OR burn OR fluvial OR "source area" OR gravel) AND (liming OR lime* OR chalk* OR "calcium carbonate" OR dolomite) AND (fish* OR salmo* OR trout OR marcroinvertebrate* OR invert* OR macrofauna OR meiofauna OR insect* OR ephemeroptera OR plecoptera OR trichoptera OR mollus* OR crustacea* OR microcrustacea* OR bivalve* OR gastropod OR zooplankton OR coleoptera OR chironomid))</p> <p>Searches in title, abstract and key words of articles.</p>	<p>Hits: 732</p>
<p>Web of Knowledge (30/7/10)</p>	<p>Topic=((Stream OR River OR Catchment OR brook OR creek OR burn OR fluvial OR source area OR gravel) AND (Liming OR lime* OR chalk* OR calcium carbonate OR dolomite) AND (Fish* OR Salmo* OR Trout OR Marcroinvertebrate* OR Invert* OR macrofauna OR meiofauna OR insect* OR Ephemeroptera OR Plecoptera OR Trichoptera OR Mollus* OR crustacea* OR microcrustacea* OR bivalve* OR gastropod OR zooplankton OR coleoptera OR chironomid))</p>	<p>Hits: 2040</p>

A.2 Web searches

Website	Search	Number of potentially relevant articles (at title level)
<p>google.scholar</p> <p>(search 1: 27/7/10, Search 2: 2/8/10)</p>	<p>Search 1: (Stream OR River OR Catchment OR brook OR creek OR burn OR fluvial OR source area OR gravel) AND (Liming OR lime* OR chalk* OR calcium carbonate OR dolomite) AND (Fish* OR Salmo* OR Trout OR Marcroinvertebrate* OR Invert* OR macrofauna OR meiofauna)</p> <p>Search 2: (Stream OR River OR Catchment OR brook OR creek OR burn OR fluvial OR source area OR gravel) AND (Liming OR lime* OR chalk* OR calcium carbonate OR dolomite) AND (insect* OR Ephemeroptera OR Plecoptera OR Trichoptera OR Mollus* OR crustacea*)</p> <p>Search 3: Stream OR River OR Catchment OR brook OR creek OR burn OR fluvial OR source area OR gravel) AND (Liming OR lime* OR chalk* OR calcium carbonate OR dolomite) AND (microcrustacea* OR bivalve* OR gastropod OR zooplankton OR coleoptera* OR chironomid)</p>	<p>71 from the three searches</p>
<p>dogpile 2/8/10</p>	<p>Only allowed simple searches</p> <p>Search 1: Liming streams 9 relevant articles</p> <p>Search 2: Liming rivers 11 relevant articles</p>	<p>20 From both searches</p>
<p>scirus 3/8/10</p>	<p>Search 1 liming and streams</p> <p>Search e2: Liming and rivers</p>	<p>39 from both searches</p>
<p>Data.esa.org 2/8/10</p>	<p>Search 1: liming Search 2: lime% (% is the sites wildcard)</p>	<p>1</p>
<p>google 3/8/10</p>	<p>Search 1 liming and streams -</p> <p>Search 2 Liming and rivers</p> <p>(complex search string did not work – only came up with 40 hits)</p>	<p>68</p>
<p>alltheweb 2/8/10</p>	<p>Search1: streams liming, - pdf documents Search 2: streams and liming - all formats Search 3: rivers liming - pdfs Search 4: rivers liming - all formats</p>	<p>28 from all searches</p>

A.3 Organisational searches

Organisation (and website)	Search
Anglers trust, http://www.anglingtrust.net/	Could not find a page of publications and search for liming made no hits No studies found
Alterra, http://www.alterra.wur.nl/UK/publications/	No studies found within list of publications
British Ecological Society, http://www.britishecologicalsociety.org/journals_publications/	Have not looked separately in journals No specific studies mentioned or published separately
Centre for Ecology and Hydrology, http://www.ceh.ac.uk/products/publications/index.html	Searched NORA NERC Open Research Archive for any publications with liming anywhere in the full text, 71 hits but no articles relevant
Countryside Council for Wales, http://www.ccw.gov.uk/publications--research.aspx	Searched for liming (included articles containing lime) No relevant studies found where data on biota was collected
Department for the Environment, Food and Rural Affairs, http://www.defra.gov.uk/evidence/science/funding/scienceprojects/index.htm and http://webarchive.nationalarchives.gov.uk/20070101090055/http://www.defra.gov.uk/science/publications/default.htm	No relevant studies found in either directory
Dŵr Cymru / Welsh Water, http://www.dwrcymru.co.uk/english/library/publications/index.asp	No relevant studies found
Environment Agency, http://www.environment-agency.gov.uk/research/library/publications/default.aspx	One article found but already included in list
Environment Canada http://www.ec.gc.ca/Publications/default.asp?lang=En	Searched for liming, no relevant studies came up
US Environmental Protection Agency - http://cfpub.epa.gov/si/	Searched for liming and no relevant studies came up
Environment Protection Agency Ireland - http://www.epa.ie/downloads/pubs/research/	No relevant studies found
EHS –Northern Ireland Environment Agency - http://www.ni-environment.gov.uk/index/publications.htm	Searched for liming, no articles found
European Commission Joint Research Centre - http://publications.jrc.ec.europa.eu/repository/	Searched for liming - Two articles on lake liming But none on stream liming
European Environment Agency - http://www.eea.europa.eu/publications	Searched for liming and no results returned
Finnish Game and Fisheries Research Institute Website: http://www.rkti.fi/english/	Searched for liming and kalkitus (Finish for liming) no relevant studies found.
Fisheries research service (SERAD) http://www.scotland.gov.uk/Topics/marine/science/Publications	Fisheries research service was renamed Marine Scotland Science in 2009 but the site contained publications from before 2009 as well no studies found, could not find any information on the loch Dee study
IKEU (Integrated liming effect monitoring) is the [Swedish] Environmental Protection Agency's program for national monitoring of the effects of liming of lakes and streams http://info1.ma.slu.se/IKEU/IKEUpresent/IKEU_Pub/IkeupubllIndex.html	list of publications and reports went through, relevant ones added (38) . The Swedish language titles were translated in google translate in order to ascertain relevance.
International Union for Conservation of Nature – http://www.iucn.org/knowledge/publications_doc/publications/	Searched for liming returned no hits

Joint Nature Conservation Committee – http://www.jncc.gov.uk/pdf/jncc_publications_research.pdf , http://www.jncc.gov.uk/page-1482	No relevant studies found Reports also on : http://www.nhbs.com/ searched for liming, two books found but both already included
Macaulay Land Use Research Institute – http://www.macaulay.ac.uk/publications/	A few liming projects reported but none on bio impact of liming on streams or rivers (mainly soils)
National Parks –	no publications on overall site, have to look at individual sites for each park
http://www.cairngorms.co.uk	no studies
http://www.exmoor-nationalpark.gov.uk	no studies
http://www.lochlomond-trossachs.org	no studies
http://www.dartmoor-npa.gov.uk	no studies
http://www.lakedistrict.gov.uk/gtga_dr_list.htm	no studies found
http://www.northumberlandnationalpark.org.uk	no studies found
http://www.northyorkmoors.org.uk/publications-44/	no studies found
http://www.peakdistrict.gov.uk/publications	no studies found
http://www.yorkshiredales.org.uk	no studies found
http://www.yorkshiredales.org.uk/index/lookingafter/projectwork.htm	no studies found
http://www.eryri-npa.gov.uk/hafan/parkauthority	no studies found
http://www.breconbeacons.org/environment	no studies found
Natural England – http://naturalengland.etraderstores.com/NaturalEnglandShop/publications	No studies found
Natural Resources Canada – http://bookstore.cfs.nrcan.gc.ca/searchpubs_e.php , http://catalogue.nrcan.gc.ca/opac/en-CA/skin/nrcan-rncan/xml/index.xml –	searched for liming, no relevant studies found
Norwegian Institute for Nature Research (NINA) http://www.nina.no	Website searched for reports using “kalking” (liming in Norwegian); 4 potentially relevant studies found
The Norwegian Directorate for Nature Management One of five government agencies under the Ministry of the Environment http://www.dirnat.no/publikasjoner/	Searched website for publications ‘kalking’ Main report from the Norwegian national liming program found along with 4 other potentially relevant studies
NIVA, Norwegian institute for water research Website: http://www.niva.no	Searched kalking and liming
Research Councils UK - http://www.rcuk.ac.uk/research/resfunding.htm	searched the grants on the web pages of the BBSRC, NERC, EPSRC and STFC, searched for acidification and liming, no relevant studies found
Severn Trent Water - http://www.stwater.co.uk/server.php?show=nav.00100a	Can not find any link to research publications
Salmon and trout association http://www.salmon-trout.org/	Searched for liming, No relevant studies found
Scottish Agricultural College http://www.sac.ac.uk/	Searched for liming, No relevant studies found
Scottish Executive http://home.scotland.gov.uk/home	Searched for liming, No relevant studies found
Scottish Environment Protection Agency http://www.sepa.org.uk/	Searched for liming, No relevant studies found
Scottish Natural Heritage http://www.snh.gov.uk/	Searched for liming, No relevant studies found
Society for Ecological Restoration http://www.ser.org/	Searched for liming, No relevant studies found

United States Environment Protection Agency http://www.epa.gov/	Searched for liming, No relevant studies found
United Utilities http://www.unitedutilities.com/	Can not find any link to research publications
Welsh Assembly Government http://wales.gov.uk/?skip=1&lang=en	No studies found
Yorkshire Water www.yorkshirewater.com/	Can not find any link to research publications