

What evidence exists on the measures and outcomes of ecological restoration for areas impacted by mining activity in Canada? A systematic map protocol

Systematic map protocol: Search Strings

Database/ web-based search engines	Search strings
Web of Science Core Collection	<p>(("restor*" or "reclaim*" or "reclamat*" or "rehabilitat*" or "remediat*" or "regenerat*" or "rewild*" or "recover*" or "enhance*" or "reforest*" or "afforest*" or "revegetat*" or "transplant*" or "regenerat*" or "reconstruct*" or "creat*" or "re-creat*" or "re-establish*" or "reestablish*" or "design*" or "redesign*" or "re-design*" or "reintroduc*" or "re-introduc*" or "repurpos*" or "re-purpos*" or "amend*" or "environmental intervention*" or (("land*") NEAR/3 ("manage*")) or (("restorat*") NEAR/3 ("practice*" or "program*" or "activit*" or "action*" or "eco*" or "habitat*" or "environment*")))) AND (((("restor*" or "reclaim*" or "reclamat*" or "rehabilitat*" or "remediat*" or "regenerat*" or "rewild*" or "recover*" or "enhance*" or "reforest*" or "afforest*" or "revegetat*" or "transplant*" or "regenerat*" or "reconstruct*" or "creat*" or "re-creat*" or "re-establish*" or "reestablish*" or "design*" or "redesign*" or "re-design*" or "reintroduc*" or "re-introduc*" or "repurpos*" or "re-purpos*" or "amend*" or "environmental intervention*" or "application" or "treatment" or "field test*" or "field trial*")) NEAR/7 (("success*" or "fail*" or "monitor*" or "evaluat*" or "outcome*" or "assess*" or "standard*" or "indicator*" or "target*" or "goal*" or "effective*" or "measur*" or "perform*" or "establish*" or "metric*" or "meaningful" or "mechanism*" or "strateg*" or "development" or "closure" or "post-min*" or "post min*")) or ((("assess*") NEAR/3 ("impact*")) or ((("closure*") NEAR/4 ("criteria*" or "plan*")))) AND ("mine" or "Mine" or "mines" or "mining" or "mineral*" or "disturbance*" or "industr*" or "metal*" or "extract*" or "post-mining" or "post-extract*" or ((("resource*") NEAR/4 ("operation*" or "excavat*" or "produc*")) or "ore*" or "pit*" or "quarr*" or "collier*" or "deposit*" or "tailing*" or "waste*" or "waste rock" or "slag" or "smelt*" or "spoil*" or "overburden*" or "barren*" or "oil sand*" or "aluminum" or "coal" or "cobalt" or "copper" or "diamond*" or "gold" or "graphite" or "iron" or "lithium" or "nickel" or "potash" or "uranium" or "zinc" or "sand" or "gravel" or "lime*" or "platinum" or "palladium" or "rhodium" or "ruthenium" or "osmium" or "iridium" or "rare earth element*" or "stone" or "silver" or "lead" or "selenium" or "tellurium" or "indium" or "cesium" or "molybdenum" or "antimony" or "ilmenite" or "niobium" or "cadmium" or "pyrophyllite" or "fluorspar" or "barite" or "gypsum" or "dolomite" or "salt" or "vermiculite" or "perlite" or "silica" or "calcium*" or "mica" or "wollastonite" or "nepheline syenite" or "talc" or "sodium*" or "potassium*" or "magnesi*" or "zeolite" or "clay" or "diatomite" or "bentonite" or "leonardite") AND ("Canad*" or "British Columbia*" or "Alberta*" or "Saskatchewan*" or "Manitoba*" or "Ontario*" or "Quebec*" or "Nova Scotia*" or "New Brunswick*" or "Prince Edward Island*" or "Newfoundland and Labrador" or "Newfoundland*" or "Labrador" or "Yukon*" or "Northwest Territor*" or "Nunavut*" or "Maritime*" or "Prairie*" or "Boreal" or "Arctic"))</p>

ProQuest Dissertations & Theses Citation Index	("restor*" or "reclaim*" or "reclamat*" or "rehabilitat*" or "remediat*" or "regenerat*" or "rewild*" or "recover*" or "enhance*" or "reforest*" or "afforest*" or "revegetat*" or "transplant*" or "regenerat*" or "reconstruct*" or "creat*" or "re-creat*" or "re-establish*" or "reestablish*" or "design*" or "redesign*" or "re-design*" or "reintroduc*" or "re-introduc*" or "repurpos*" or "re-purpos*" or "amend*" or "environmental intervention*" or (("land*") NEAR/3 ("manage*")) or (("restorat*") NEAR/3 ("practice*" or "program*" or "activit*" or "action*" or "eco*" or "habitat*" or "environment*")) AND (((("restor*" or "reclaim*" or "reclamat*" or "rehabilitat*" or "remediat*" or "regenerat*" or "rewild*" or "recover*" or "enhance*" or "reforest*" or "afforest*" or "revegetat*" or "transplant*" or "regenerat*" or "reconstruct*" or "creat*" or "re-creat*" or "re-establish*" or "reestablish*" or "design*" or "redesign*" or "re-design*" or "reintroduc*" or "re-introduc*" or "repurpos*" or "re-purpos*" or "amend*" or "environmental intervention*" or "application" or "treatment" or "field test*" or "field trial*")) NEAR/7 (("success*" or "fail*" or "monitor*" or "evaluat*" or "outcome*" or "assess*" or "standard*" or "indicator*" or "target*" or "goal*" or "effective*" or "measur*" or "perform*" or "establish*" or "metric*" or "meaningful" or "mechanism*" or "strateg*" or "development" or "closure" or "post-min*" or "post min*")) or (("assess*") NEAR/3 ("impact*")) or (("closure*") NEAR/4 ("criteria*" or "plan*")) AND ("mine" or "Mine" or "mines" or "mining" or "mineral*" or "disturbance*" or "industr*" or "metal*" or "extract*" or "post-mining" or "post-extract*" or (("resource*") NEAR/4 ("operation*" or "excavat*" or "produc*")) or "ore*" or "pit*" or "quarr*" or "collier*" or "deposit*" or "tailing*" or "waste*" or "waste rock" or "slag" or "smelt*" or "spoil*" or "overburden*" or "barren*" or "oil sand*" or "aluminum" or "coal" or "cobalt" or "copper" or "diamond*" or "gold" or "graphite" or "iron" or "lithium" or "nickel" or "potash" or "uranium" or "zinc" or "sand" or "gravel" or "lime*" or "platinum" or "palladium" or "rhodium" or "ruthenium" or "osmium" or "iridium" or "rare earth element*" or "stone" or "silver" or "lead" or "selenium" or "tellurium" or "indium" or "cesium" or "molybdenum" or "antimony" or "ilmenite" or "niobium" or "cadmium" or "pyrophyllite" or "fluorspar" or "barite" or "gypsum" or "dolomite" or "salt" or "vermiculite" or "perlite" or "silica" or "calcium*" or "mica" or "wollastonite" or "nepheline syenite" or "talc" or "sodium*" or "potassium*" or "magnesi*" or "zeolite" or "clay" or "diatomite" or "bentonite" or "leonardite") AND ("Canad*" or "British Columbia*" or "Alberta*" or "Saskatchewan*" or "Manitoba*" or "Ontario*" or "Quebec*" or "Nova Scotia*" or "New Brunswick*" or "Prince Edward Island*" or "Newfoundland and Labrador" or "Newfoundland*" or "Labrador" or "Yukon*" or "Northwest Territor*" or "Nunavut*" or "Maritime*" or "Prairie*" or "Boreal" or "Arctic")
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Environment Index	<p>TI ((restor* or reclaim* or reclamation* or rehabilitat* or remediates* or regenerat* or rewild* or recover* or enhance* or reforest* or afforest* or revegetat* or transplant* or regenerat* or reconstruct* or creat* or "re-creat*" or "re-establish*" or reestablish* or design* or redesign* or "re-design*" or reintroduc* or "re-introduc*" or repurpos* or "re-purpos*" or amend* or "environmental intervention*" or ((land*) N3 (manage*)) or ((restorat*) N3 (practice* or program* or activit* or action* or eco* or habitat* or environment*)))) OR AB ((restor* or reclaim* or reclamation* or rehabilitat* or remediates* or regenerat* or rewild* or recover* or enhance* or reforest* or afforest* or revegetat* or transplant* or regenerat* or reconstruct* or creat* or "re-creat*" or "re-establish*" or reestablish* or design* or redesign* or "re-design*" or reintroduc* or "re-introduc*" or repurpos* or "re-purpos*" or amend* or "environmental intervention*" or ((land*) N3 (manage*)) or ((restorat*) N3 (practice* or program* or activit* or action* or eco* or habitat* or environment*)))) OR KW ((restor* or reclaim* or reclamation* or rehabilitat* or remediates* or regenerat* or rewild* or recover* or enhance* or reforest* or afforest* or revegetat* or transplant* or regenerat* or reconstruct* or creat* or "re-creat*" or "re-establish*" or reestablish* or design* or redesign* or "re-design*" or reintroduc* or "re-introduc*" or repurpos* or "re-purpos*" or amend* or "environmental intervention*" or ((land*) N3 (manage*)) or ((restorat*) N3 (practice* or program* or activit* or action*</p>

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	<p>sand or gravel or lime* or platinum or palladium or rhodium or ruthenium or osmium or iridium or rare earth element* or stone or silver or lead or selenium or tellurium or indium or cesium or molybdenum or antimony or ilmenite or niobium or cadmium or pyrophyllite or fluorspar or barite or gypsum or dolomite or salt or vermiculite or perlite or silica or calcium* or mica or wollastonite or nepheline syenite or talc or sodium* or potassium* or magnesi* or zeolite or clay or diatomite or bentonite or leonardite)) OR KW ((mine or Mine or mines or mining or disturbance* or mineral* or industr* or metal* or extract* or ((resource*) N4 (operation* or excavat* or produc*)) or ore* or pit* or quarri* or collier* or deposit* or tailing* or waste* or “waste rock” or slag or smelt* or spoil* or overburden* or barren* or oil sand* or aluminum or coal or cobalt or copper or diamond* or gold or graphite or iron or lithium or nickel or potash or uranium or zinc or sand or gravel or lime* or platinum or palladium or rhodium or ruthenium or osmium or iridium or rare earth element* or stone or silver or lead or selenium or tellurium or indium or cesium or molybdenum or antimony or ilmenite or niobium or cadmium or pyrophyllite or fluorspar or barite or gypsum or dolomite or salt or vermiculite or perlite or silica or calcium* or mica or wollastonite or nepheline syenite or talc or sodium* or potassium* or magnesi* or zeolite or clay or diatomite or bentonite or leonardite)) AND TI ((Canad* or British Columbia* or Alberta* or Saskatchewan* or Manitoba* or Ontario* or Quebec* or Nova Scotia* or New Brunswick* or Prince Edward Island* or “Newfoundland and Labrador” or Newfoundland* or Labrador or Yukon* or Northwest Territor* or Nunavut* or Maritime* or Prairie* or Boreal or Arctic)) OR AB ((Canad* or British Columbia* or Alberta* or Saskatchewan* or Manitoba* or Ontario* or Quebec* or Nova Scotia* or New Brunswick* or Prince Edward Island* or “Newfoundland and Labrador” or Newfoundland* or Labrador or Yukon* or Northwest Territor* or Nunavut* or Maritime* or Prairie* or Boreal or Arctic)) OR KW ((Canad* or British Columbia* or Alberta* or Saskatchewan* or Manitoba* or Ontario* or Quebec* or Nova Scotia* or New Brunswick* or Prince Edward Island* or “Newfoundland and Labrador” or Newfoundland* or Labrador or Yukon* or Northwest Territor* or Nunavut* or Maritime* or Prairie* or Boreal or Arctic))</p> <p>Subject Headings included in the search: (RESTORATION ecology OR ABANDONED mined lands reclamation OR ABANDONED mines OR ABANDONED quarries OR INDUSTRIAL waste site remediation OR SOIL remediation OR HAZARDOUS waste site remediation OR WILDLIFE reintroduction OR REFORESTATION OR AFFORESTATION OR REVEGETATION) AND (ENVIRONMENTAL monitoring OR CUMULATIVE effects assessment OR LANDSCAPE assessment OR ECOLOGICAL risk assessment OR ENVIRONMENTAL indicators) AND (MINES & mineral resources OR MINERAL industries & the environment OR MINES & mineral resources & the environment OR MINE management OR MINE soils OR MINE drainage OR RESOURCE-based communities OR ROCK excavation OR MINERAL processing OR HARD rock minerals OR METALS OR METALS & the environment OR INDUSTRIAL wastes OR SLAG leaching</p>
Google Scholar	<p>(“ecological restoration” “reclamation” “rehabilitation” “remediation” “recovery”) (“outcome” “monitoring” “criteria” “closure” “indicator”)</p>

	("mine" "mining" "mineral" "extraction" "metal" "tailing") ("Canada" "Canadian" "Maritime" "Prairie" "Boreal" "Arctic")
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Canada Commons	<p>(title:(restoration OR reclamation OR rehabilitation OR remediation OR regeneration OR rewilding OR recovery OR enhancement OR reforestation OR afforestation OR revegetation OR transplantation OR regeneration OR reconstruction OR creation OR establishment OR design OR reintroduction OR repurposing OR amending OR intervention OR "land management" OR habitat OR environment)) AND (title:(success OR failure OR monitoring OR evaluation OR outcome OR assess OR standard OR indicator OR target OR goal OR effectiveness OR measure OR performance OR metric OR mechanism OR strategy OR closure)) AND (title:(mine OR mining OR disturbance OR mineral OR industry OR metal OR extraction OR excavation OR ore OR pit OR quarry OR colliery OR deposit OR tailing OR waste OR slag OR smelt OR spoil OR overburden OR barren))</p> <p>(summary:(restoration OR reclamation OR rehabilitation OR remediation OR regeneration OR rewilding OR recovery OR enhancement OR reforestation OR afforestation OR revegetation OR transplantation OR regeneration OR reconstruction OR creation OR establishment OR design OR reintroduction OR repurposing OR amending OR intervention OR "land management" OR habitat OR environment)) AND (summary:(success OR failure OR monitoring OR evaluation OR outcome OR assess OR standard OR indicator OR target OR goal OR effectiveness OR measure OR performance OR metric OR mechanism OR strategy OR closure)) AND (summary:(mine OR mining OR disturbance OR mineral OR industry OR metal OR extraction OR excavation OR ore OR pit OR quarry OR colliery OR deposit OR tailing OR waste OR slag OR smelt OR spoil OR overburden OR barren))</p>