

Evidence in Conservation Teaching Initiative

Johdanto näyttöön perustuvaan luonnonsuojeluun (Sisältö suunnattu tieteen tekijöille)

An Introduction to evidence-based conservation (content tailored for research scientists)

By Harriet Downey, Tatsuya Amano and Jessica Walsh

2020

Translated to Finnish by Sini Savilaakso

<https://www.britishecologicalsociety.org/applied-ecology-resources/about-aer/additional-resources/evidence-in-conservation-teaching/>

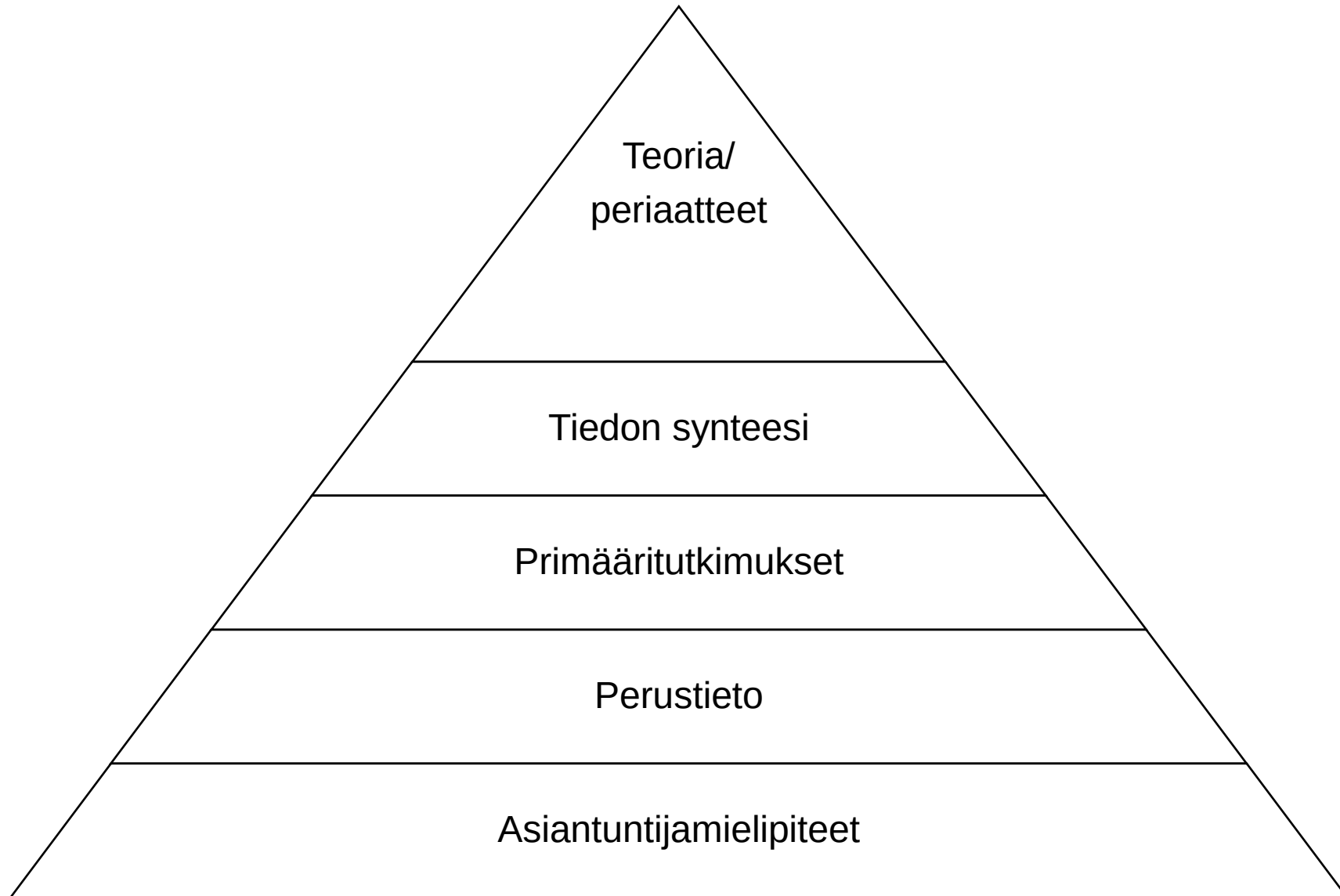
Sisältö

- Mitä on tieteellinen näyttö ja miksi se on tärkeää?
- Miten tieteellistä näyttöä käytetään luonnonsuojelussa?
- Mitä esteitä on olemassa tieteellisen näytön käytölle luonnonsuojelussa?
- Mitä esteille voidaan tehdä?
- Tiedon synteesi
 - Systemaattiset katsaukset
 - Systemaattiset kartoitukset
 - Synteesit/Tiivistelmät
 - Työkalut päätöksenteon tukemiseksi
- Tiedon synteessin haasteet

Mitä on näyttö?

- Merkityksellinen *tieto*, jota käytetään arvioimaan yhtä tai useampia hypoteeseja, jotka liittyvät kiinnostuksen alaiseen kysymykseen
- *Tieteellinen näyttö* viittaa erityisesti tietoon, joka on kerätty tieteellisiä menetelmiä käyttäen. Se sisältää julkaistut, vertaisarvioidut tutkimukset ja julkaisemattomat tutkimukset opinnäytetöissä ja raporteissa.

Onko kaikki näyttö samanarvoista?

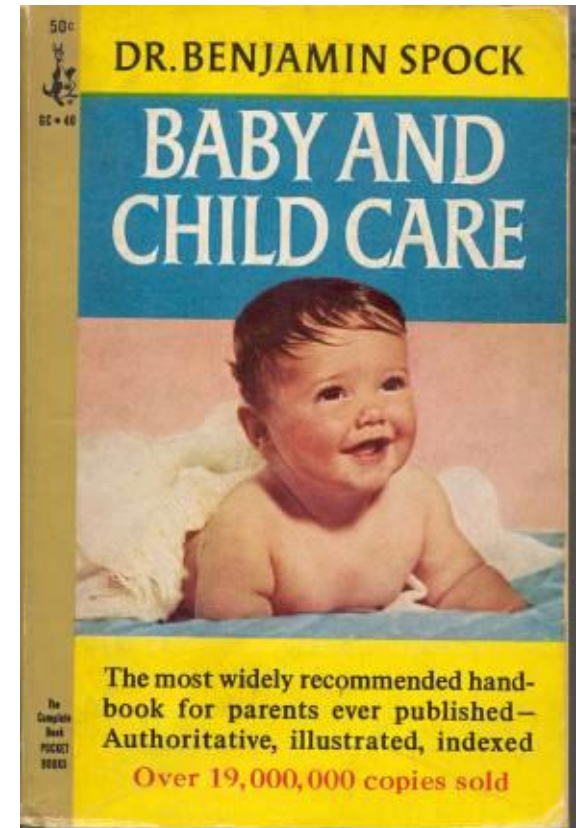


Miksi tieteellisen näytön käyttö on tärkeää?



Dakota Corbin

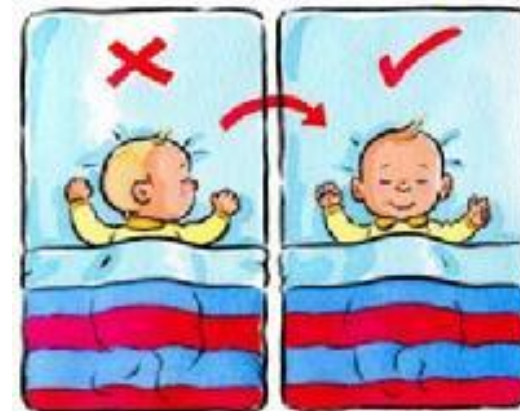
- Kätkytkuolemasta tuli epideeminen 60- ja 70 – luvuilla.
- Epidemian huipulla 1 per 250 syntyneestä vauvasta rikkaissa maissa kuoli kätkytkuolemaan.



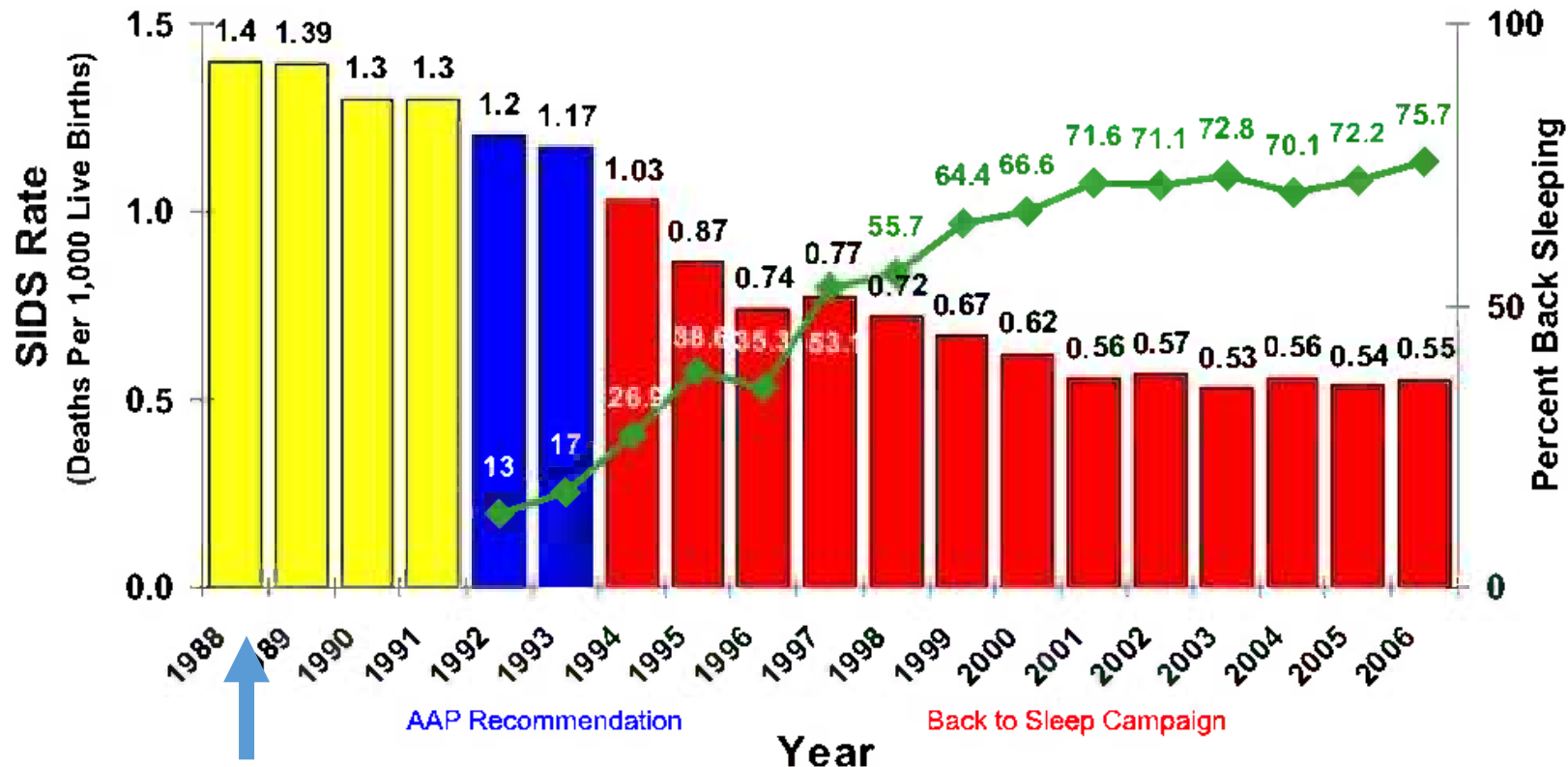
- 1980-luvun alkupuolella Dr Peter Flemming alkoi haastatella vauvansa menettäneitä vanhempia ja totesi, että heitä yhdisti yksi tekijä – he nukuttivat vauvansa mahallaan.
- Toteutettiin yksityiskohtainen tutkimus, joka todisti linkin kätkeytkuoleman ja mahalla nukkumisen välillä.
- MUTTA terveydenhoitojärjestelmän, tässä tapauksessa kyseessä National Health Service (NHS) Yhdistyneessä kuningaskunnassa, suosittaman ohjeistuksen muuttaminen oli siitä huolimatta vaikeaa.



**Safe Sleep for
Your Baby**



SIDS Rate and Back Sleeping (1988 – 2006)



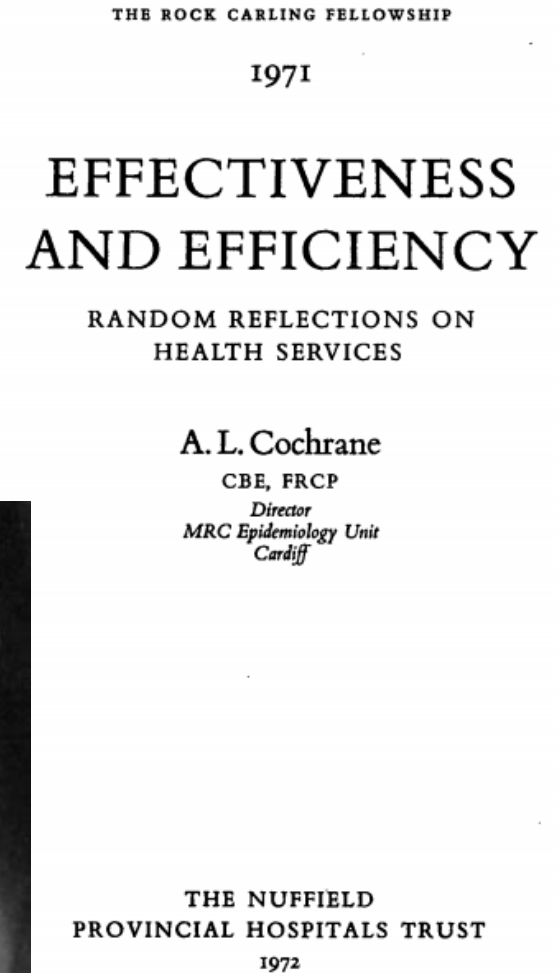
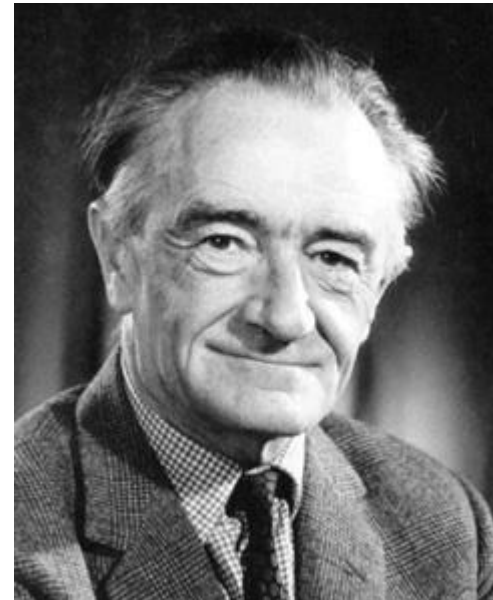
- Suositusten muuttamisen jälkeen kätkytkuolemat vähenivät 1 per 250:sta 1 per 3000.

SIDS Rate Source: CDC, National Center for Health Statistics,
Sleep Position Data: NICHD, National Infant Sleep Position Study.

Näyttöön perustuva päätöksenteko

- Helpottaa systemaattista vertailua ja näytön synteesiä
- Lisätä päätöksiin liittyvän saatavilla olevan näytön laatua
- Vähentää vääristymiä ja tulosten valikointia
- Lisää päätösten avoimuutta
- Lisää toimien vaikuttavuutta
- Tunnistaa tiedossa olevat aukot

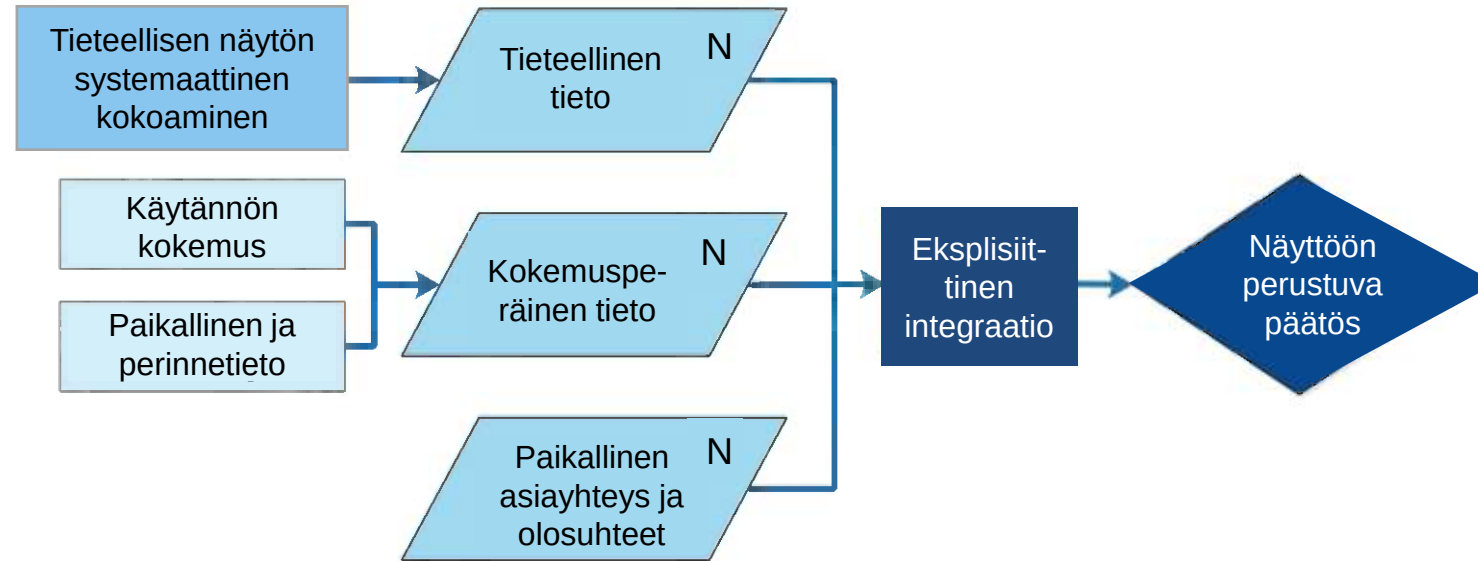
(Sutherland *et al.* 2004)



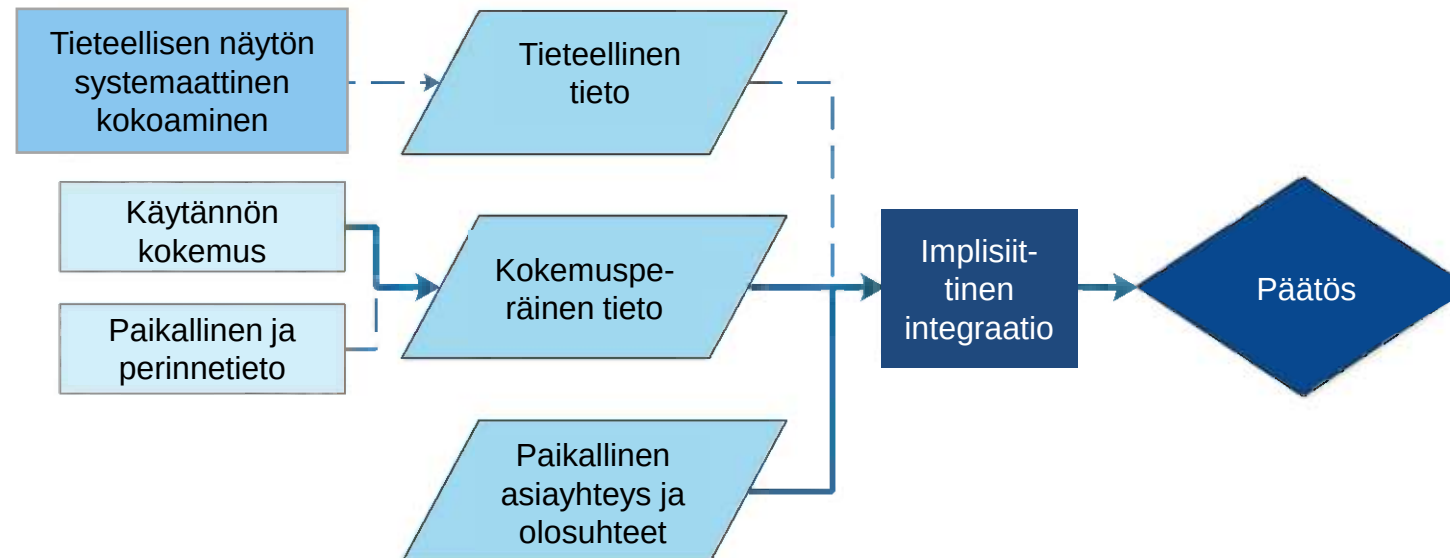
Mutta mitä muuta meidän täytyy ottaa huomioon päätöksenteossa?

- Paikallinen tieto
- Alkuperäiskansojen tieto ja perinnetieto
- Kokemukseen pohjautuva tieto ja asiantuntijoiden mielipiteet
- Yhteiskunnalliset arvot ja kulttuuri
- Taloudelliset kustannukset
- Resurssit
- Toteutettavuus

a) Parannettu malli näyttöön perustuvalle luonnonsuojelulle

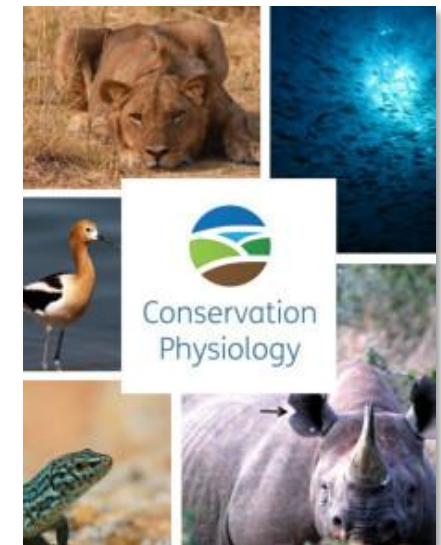
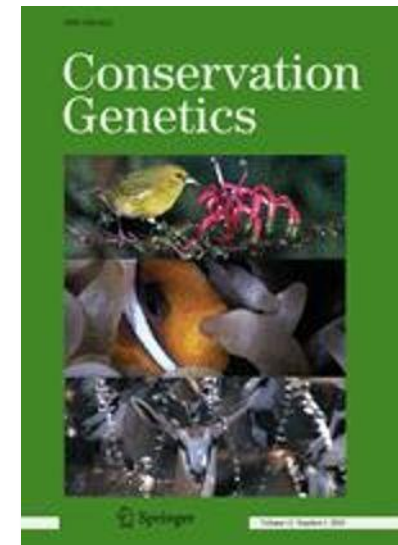
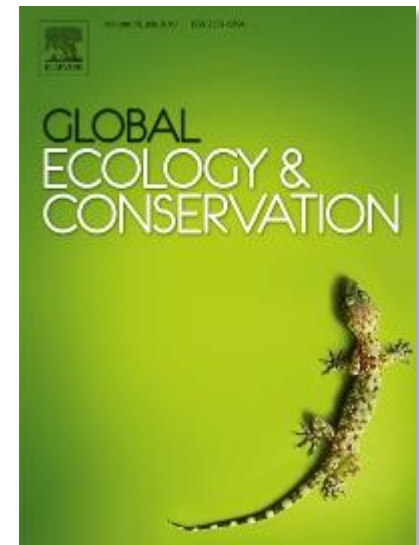
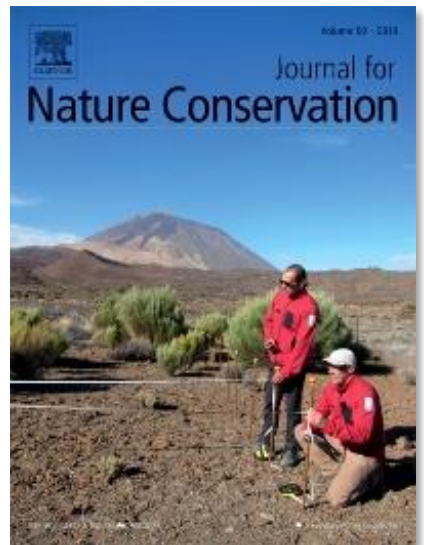
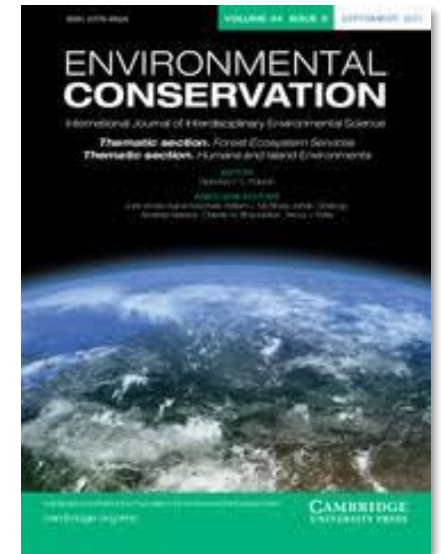
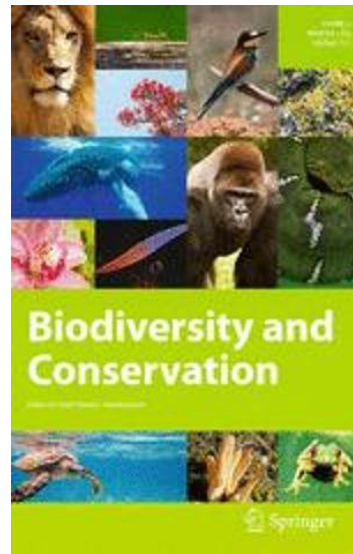


b) Tämän hetkinen luonnonsuojelun malli



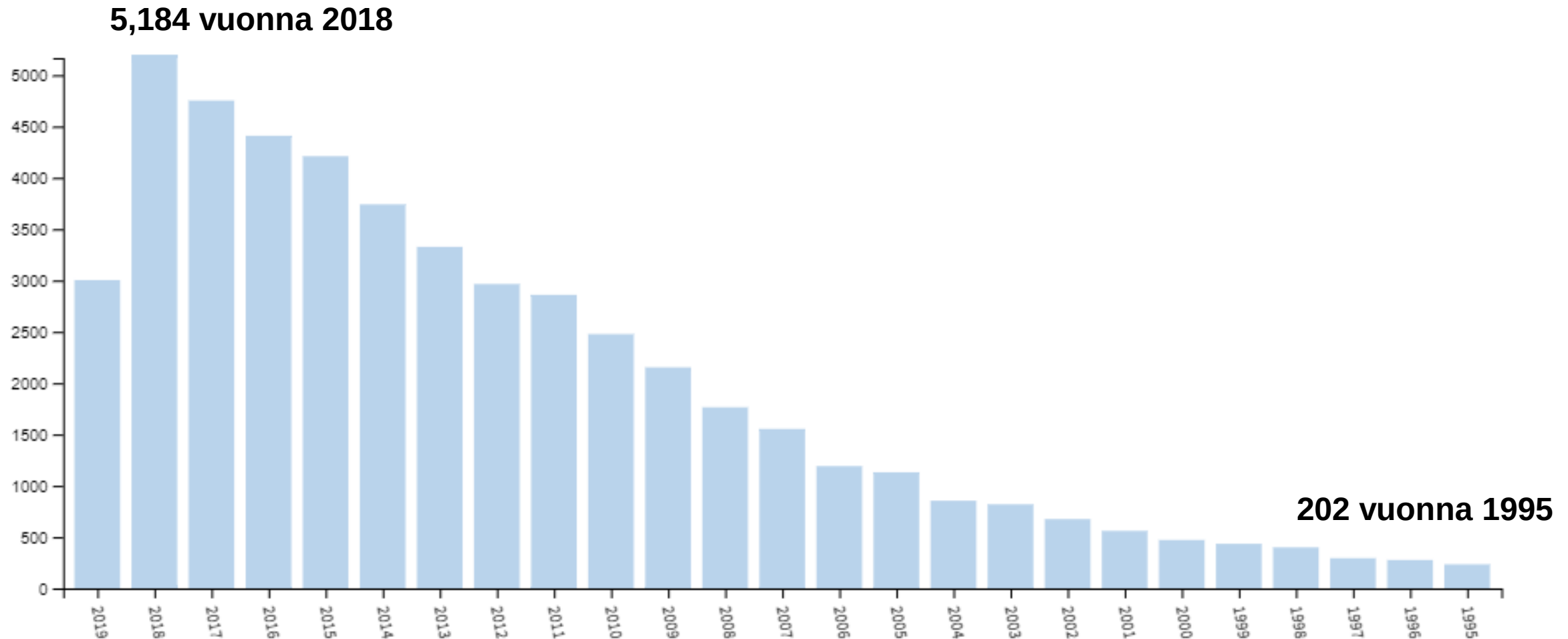
Tieteellinen näyttö luonnonsuojelussa

Tieteellisen näytön kertyminen luonnonsuojelussa

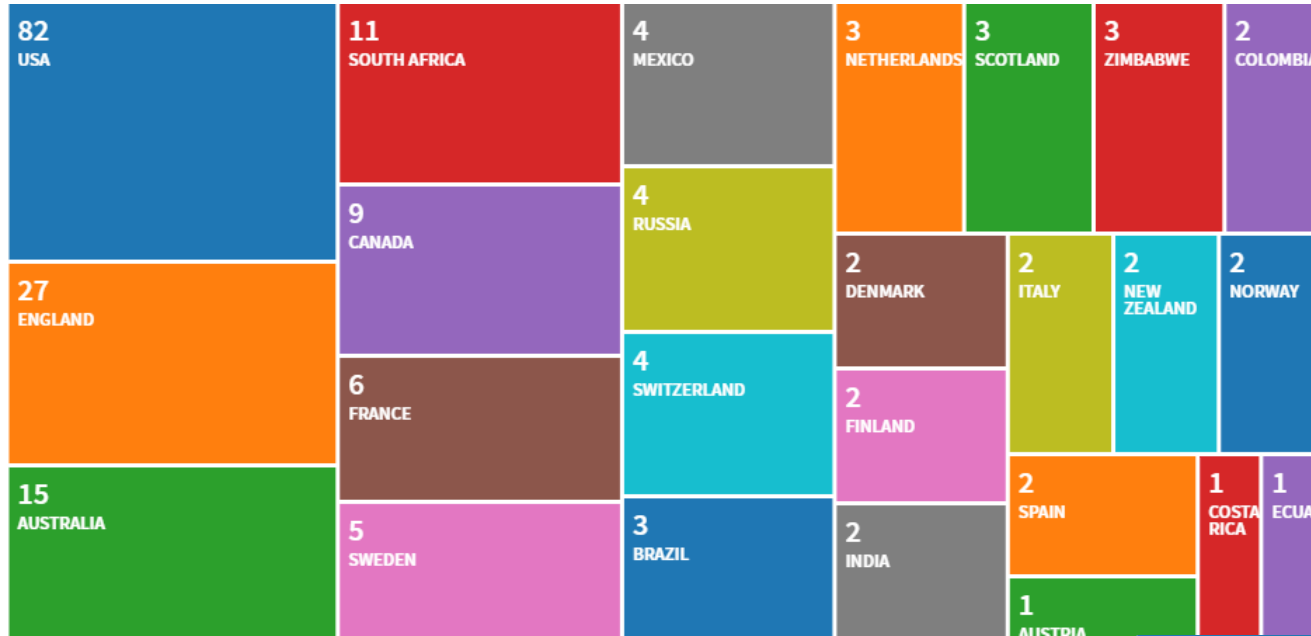


Tieteellisen näytön kertyminen luonnonsuojelun alalla

Hakusanoilla “biodiversity” and “conservation” haettujen tutkimusten määrä Web of Sciencessä



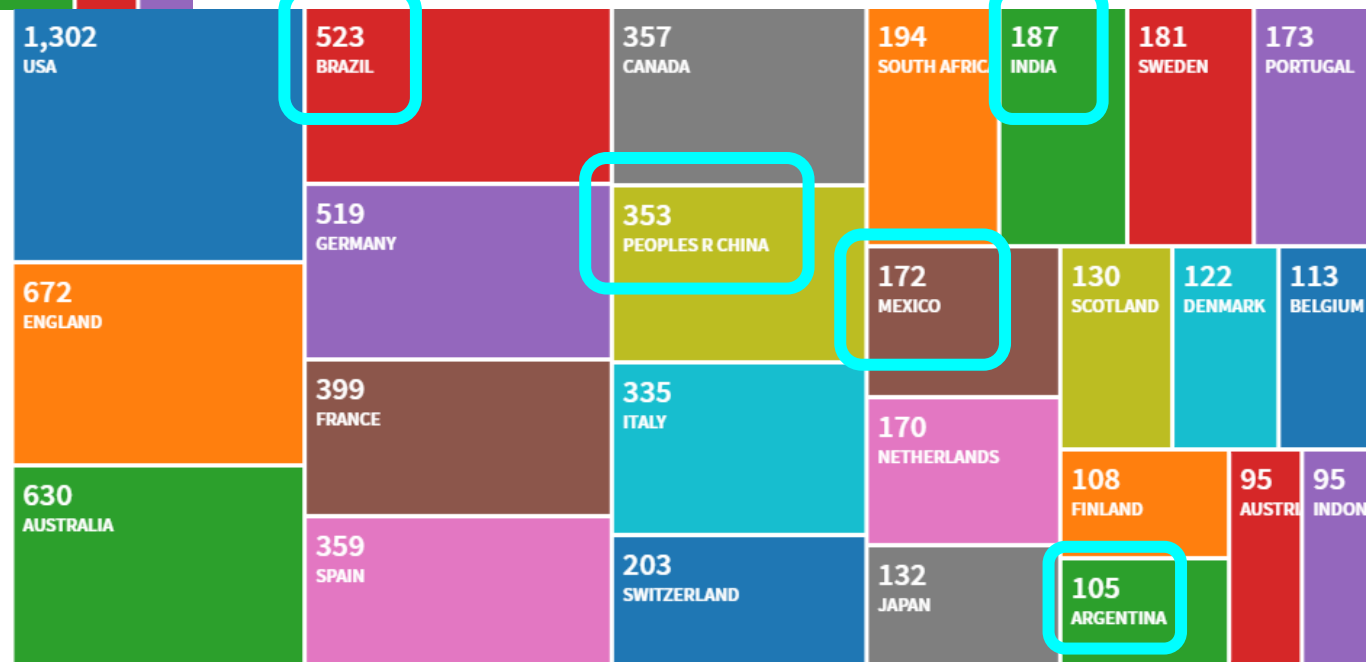
Tieteellisen näytön kertyminen luonnonsuojelun alalla



1995

Hakusanoilla “biodiversity” and “conservation” haettujen tutkimusten määrä Web of Sciencessä

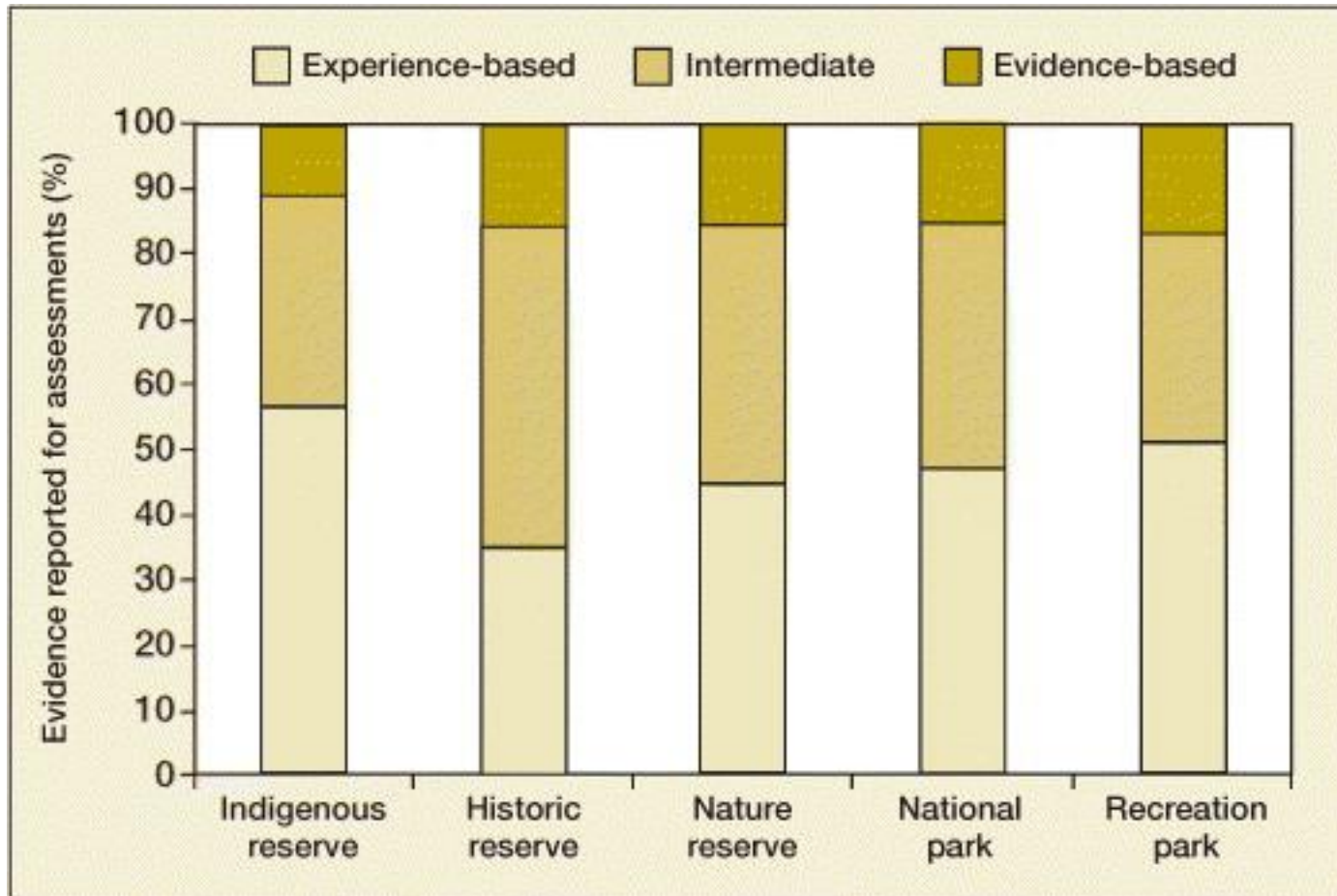
2018



Käytetäänkö kertynyttä tietoa luonnonsuojelussa?



Tieteellisen näytön käytön puute päätöksissä



Luonnonsuojelua
käytännössä toteuttavien
ihmisten tiedonlähteet

Tutkimuksen ja käytännön rajapinta

Vain **33%** luonnonsuojelun arviointia koskevista 88 tieteellisestä julkaisusta vuosien 1998 ja 2002 välillä on johtanut jonkun toimen toteuttamiseen (Knight et al 2008 Cons Biol)

Vain **23%** päättäjistä käytti tieteellisiä julkaisuja kun he laativat Luonnonsuojelualueiden hoito- ja käyttösuunnitelmia Yhdistyneessä kuningaskunnassa (Pullin et al 2004 Biol Conserv)

Vain **10%** Australian suojelupäätöksistä käytetään tieteellistä näyttöä (Cook et al 2010 Front Ecol Environ)

Noin **66%** Kalifornian resurssivastaavista käyttää vertaisarvioituja lehtiä saadakseen tietoa vieraslajisten kasvien leviämisestä (Matzek et al 2014 Cons Lett)

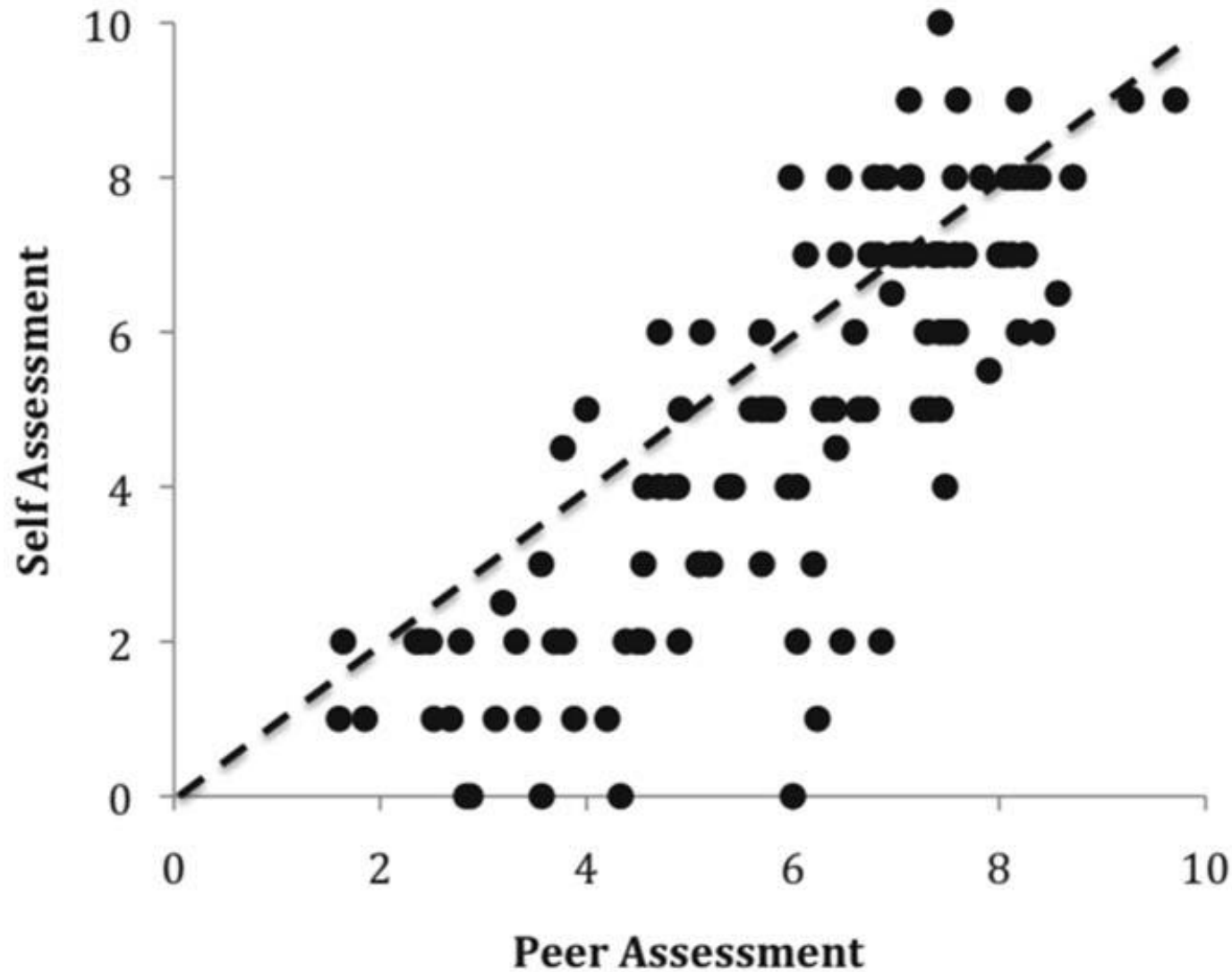
Tieteellinen kirjallisuus on vain **2,4%** tietolähteistä, joita luonnonsuojelun harjoittajat käyttävät Broadlandissa, Yhdistyneessä kuningaskunnassa (Sutherland et al 2004 TREE)

Vain **20%** Sveitsin luonnonsuojelualan ammattilaisista käyttää kansainvälisiä tieteellisiä lehtiä päätöksentekoon (Fabian et al 2019 Biol Conserv)

Miksi tieteellisen näytön käytöllä on väliä?

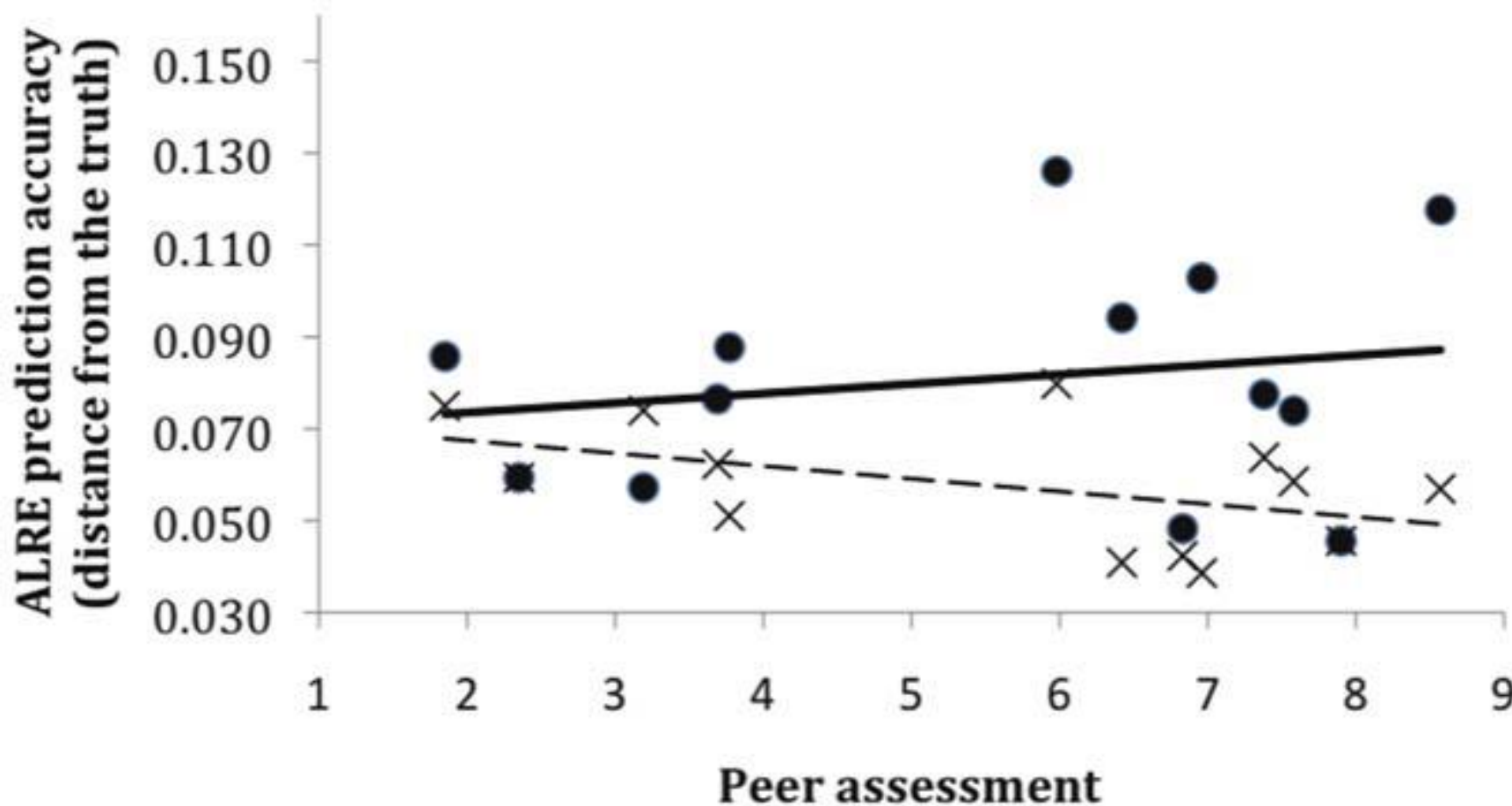
- Parantaa päätöksenteon käytettävissä olevan näytön laatua
- Vähentää vääristymiä ja tulosten valikointia
- Lisää päätösten avoimuutta
- Lisää toimien vaikuttavuutta
- Tunnistaa tiedossa olevat aukot

Mutta miksi emme vain kysy asiantuntijoilta?



Selkeä ja johdonmukainen
asiantuntijuuden luokittelu
asiantuntijoiden ja heidän
vertaistensa toimesta, Burgman
et al. (2011)

Self assessment versus peer assessment of expertise. Data from all workshops (overall correlation, $r = 0.85$). Peer assessment is the average of the scores on the 11-point scale provided by each person's peers on the day of the workshop. The strong relationship was consistent across the five groups, where the correlations ranged from 0.67 to 0.94. The dashed line is parity (where self assessment and peer assessment are equal).



MUTTA ei
korrelaatiota
luokittelun ja
suorituskyvyn välillä!

Kuva 2. Vertaisten arvio asiantuntijan tiedosta verrattuna todelliseen suoritukseen. Ennustustarkkuus lasketaan ALRE-arvona (katso Burgman et al 2011). Pienet arvot ennustetarkkuudelle ovat parempia. Ympyrät ja yhtenäinen viiva kuvaavat 1. kierroksen arvioita ($r = 0,19$). Ristit ja katkoviiva ovat 2. kierroksen arvioita ($r = 20,47$). Arviot lähempänä x-akselia osoittavat, että vastaukset ovat lähempänä totuutta.

Miksi tieteellisen näytön käyttö on tärkeää?



Sutherland and Wordley (2017) Nat Ecol Evol

Leppakosiltojen, joita on käytetty Yhdistyneessä kuningaskunnassa yli vuosikymmenen ajan vähentämään lepokoiden kuolemia teillä ja jotka ovat maksaneet noin £2.5 miljoonaa, tiedetään olevan tehottomia, mutta siitä huolimatta niitä käytetään edelleen.

Linnunpönttöjä, jotka on laitettu poikkeuksellisen tiheään EU:n yhteisen maatalouspolitiikan alaisuudessa

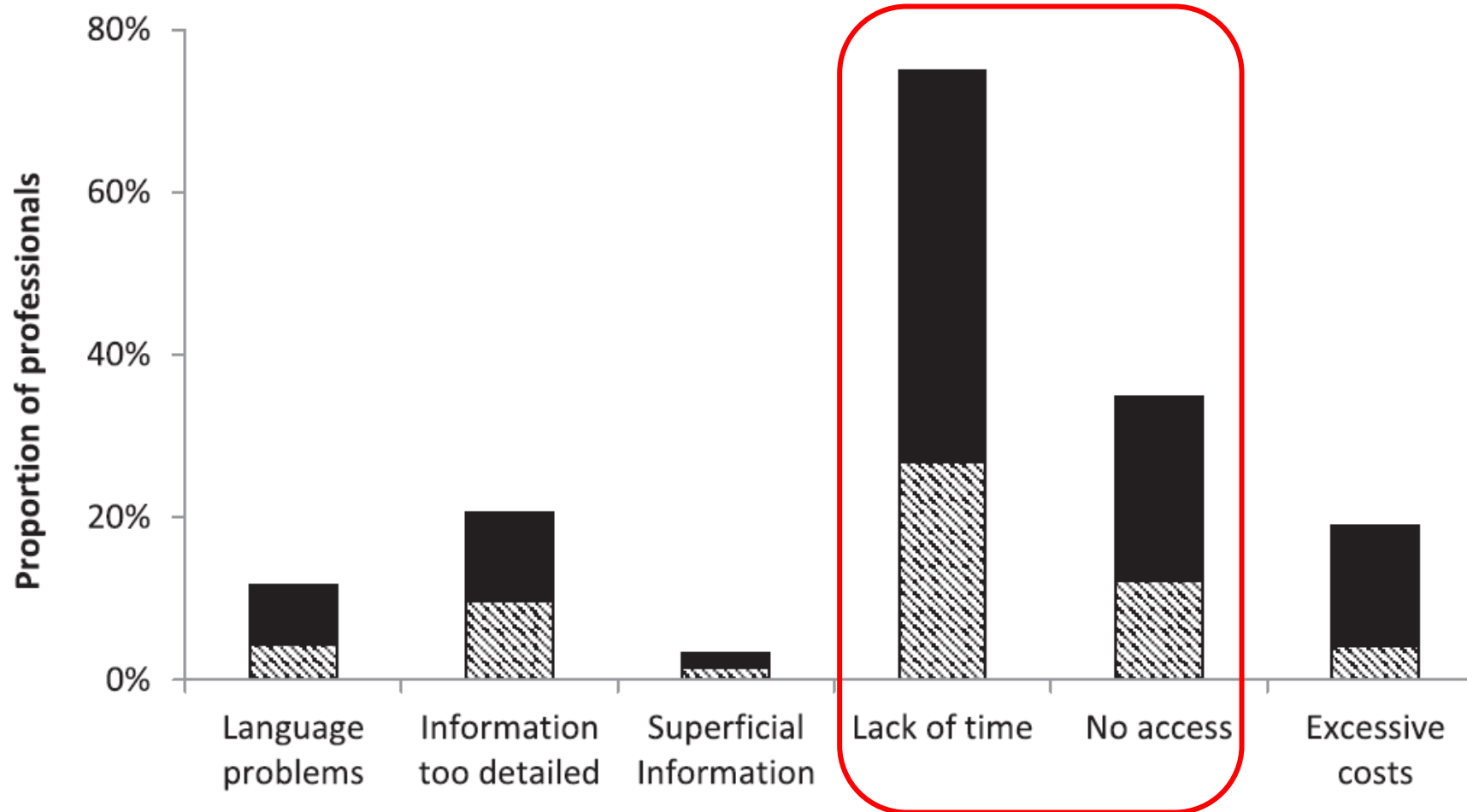


Pe'er et al (2014) Science

Jos se on tärkeää, miksi sitä ei käytetä?

Miksi tieteellistä näyttöä ei käytetä käytännössä?

Sytä miksi sveitsiläiset luonnonsuojelualan ammattilaiset eivät lue alansa tieteellisiä julkaisuja



A word cloud on a black background with white and green text. The words are of various sizes and orientations, representing different barriers to research use. The most prominent words are 'lack of capacity and resources', 'poor organisational management and structure', 'no use of research in decision process', 'lack of access to research', and 'nature of issue'. Other visible words include 'practitioner characteristics', 'lack of skills to use research', 'practitioners' attitudes about research', 'poor academic-practitioner relationships', 'context of scientific evidence', 'negative organisational culture', 'high demand to publish', 'difficult to implement', 'negative stakeholders' attitudes and beliefs', 'poor practitioner-stakeholder relationships', 'lack of support for advisors', 'culture of practitioners', 'research not relevant or applicable', 'poor quality evidence', 'lack of skills to communicate research', 'lack of engagements with wider community', 'reluctant or inexperienced decision maker', 'culture of researchers', and 'science doesn't exist'.

nature of issue
lack of skills to use research
science doesn't exist
practitioner characteristics
lack of access to research
culture of researchers
practitioners' attitudes about research
poor academic-practitioner relationships
context of scientific evidence
negative organisational culture
lack of capacity and resources
lack of awareness
poor organisational management and structure
high demand to publish
no use of research in decision process
difficult to implement
negative stakeholders' attitudes and beliefs
poor practitioner-stakeholder relationships
social, political and economic context
lack of support for advisors
poor manager-advisor relationships
culture of practitioners
poor quality evidence
lack of skills to communicate research
research not relevant or applicable
lack of engagements with wider community
reluctant or inexperienced decision maker

A word cloud on a black background with various phrases in different colors and sizes. Five phrases are highlighted with orange rectangular boxes: 'lack of capacity and resources', 'poor organisational management and structure', 'no use of research in decision process', 'social, political and economic context', and 'lack of support for advisors'. Other visible phrases include 'nature of issue', 'science doesn't exist', 'lack of skills to use research', 'lack of access to research', 'practitioner characteristics', 'poor academic-practitioner relationships', 'culture of researchers', 'practitioners' attitudes about research', 'context of scientific evidence', 'negative organisational culture', 'lack of awareness', 'high demand to publish', 'difficult to implement', 'negative stakeholders' attitudes and beliefs', 'poor practitioner-stakeholder relationships', 'poor manager-advisor relationships', 'culture of practitioners', 'research not relevant or applicable', 'poor quality evidence', 'lack of skills to communicate research', 'lack of engagements with wider community', and 'reluctant or inexperienced decision maker'.

nature of issue

science doesn't exist

lack of skills to use research

lack of access to research

practitioner characteristics

poor academic-practitioner relationships

culture of researchers

practitioners' attitudes about research

context of scientific evidence

negative organisational culture

lack of capacity and resources

lack of awareness

high demand to publish

poor organisational management and structure

no use of research in decision process

difficult to implement

negative stakeholders' attitudes and beliefs

poor practitioner-stakeholder relationships

social, political and economic context

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lack of skills to communicate research

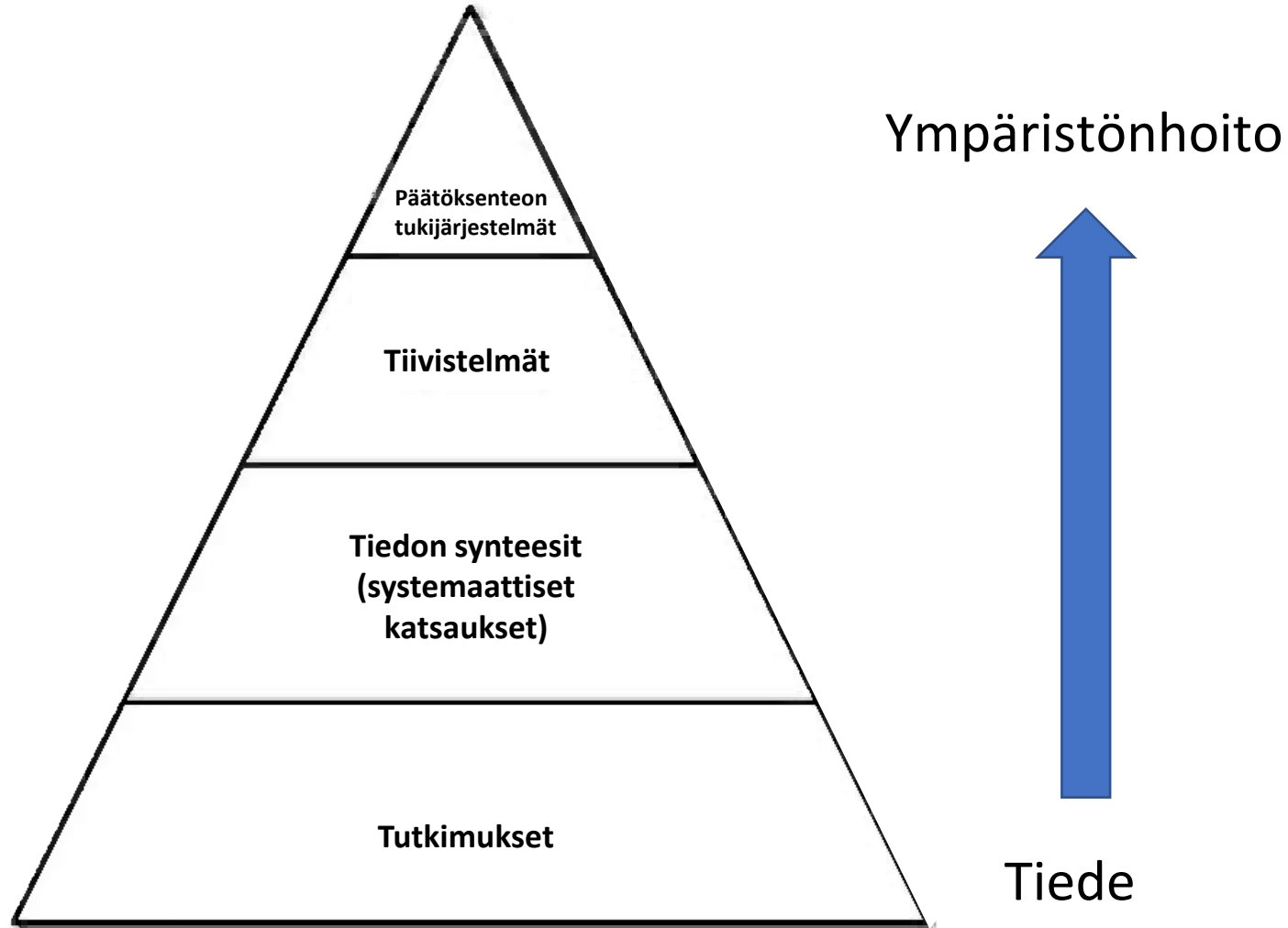
lack of engagements with wider community

reluctant or inexperienced decision maker

Yksi ratkaisu tutkimuksen käytön parantamiseen

Tieteellisen näytön järjestäminen '4T' näytön pyramidin mukaisesti

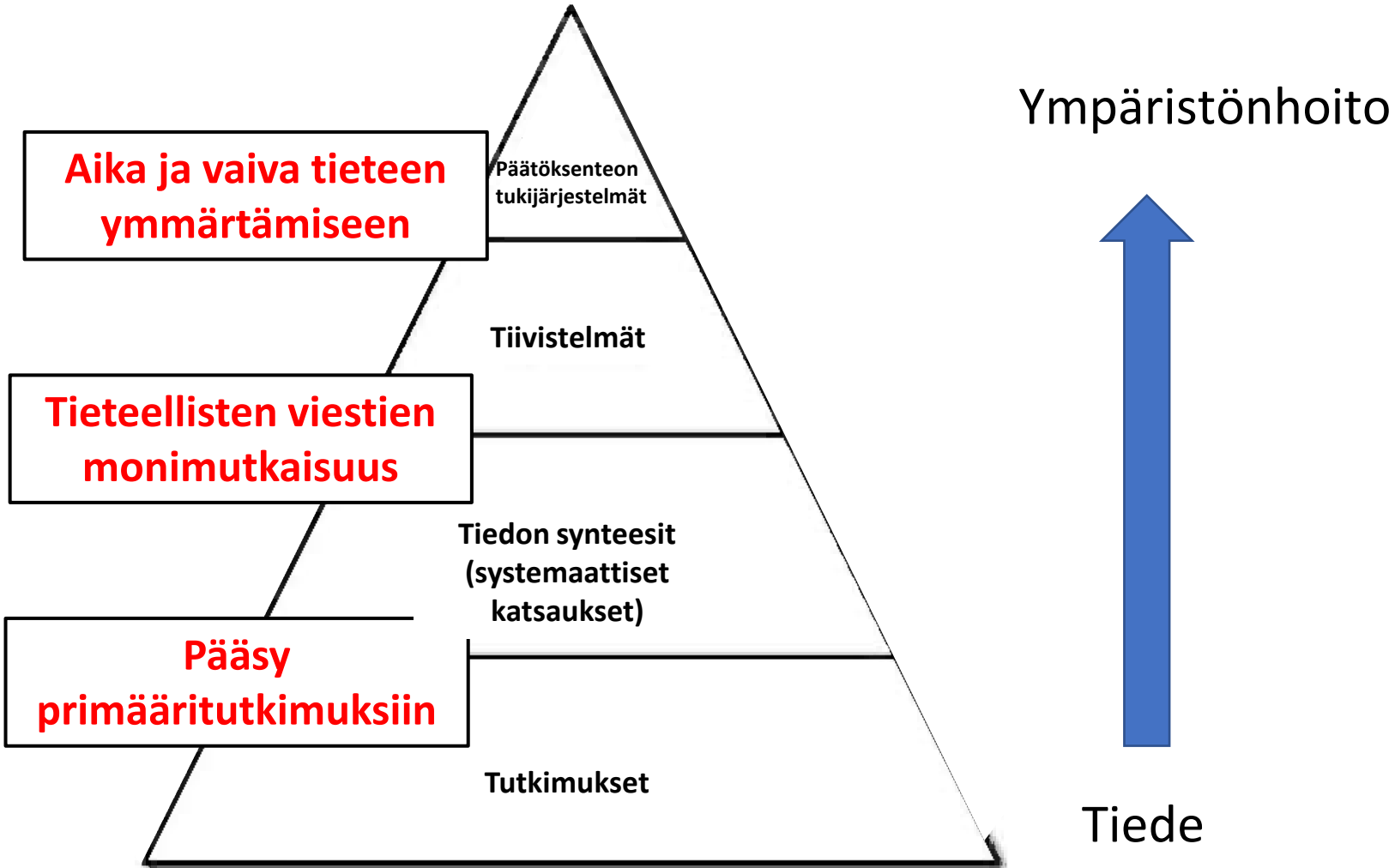
Dicks et al. 2014 TREE



Yksi ratkaisu tutkimuksen käytön parantamiseen

Tieteellisen näytön järjestäminen '4T' näytön pyramidin mukaisesti

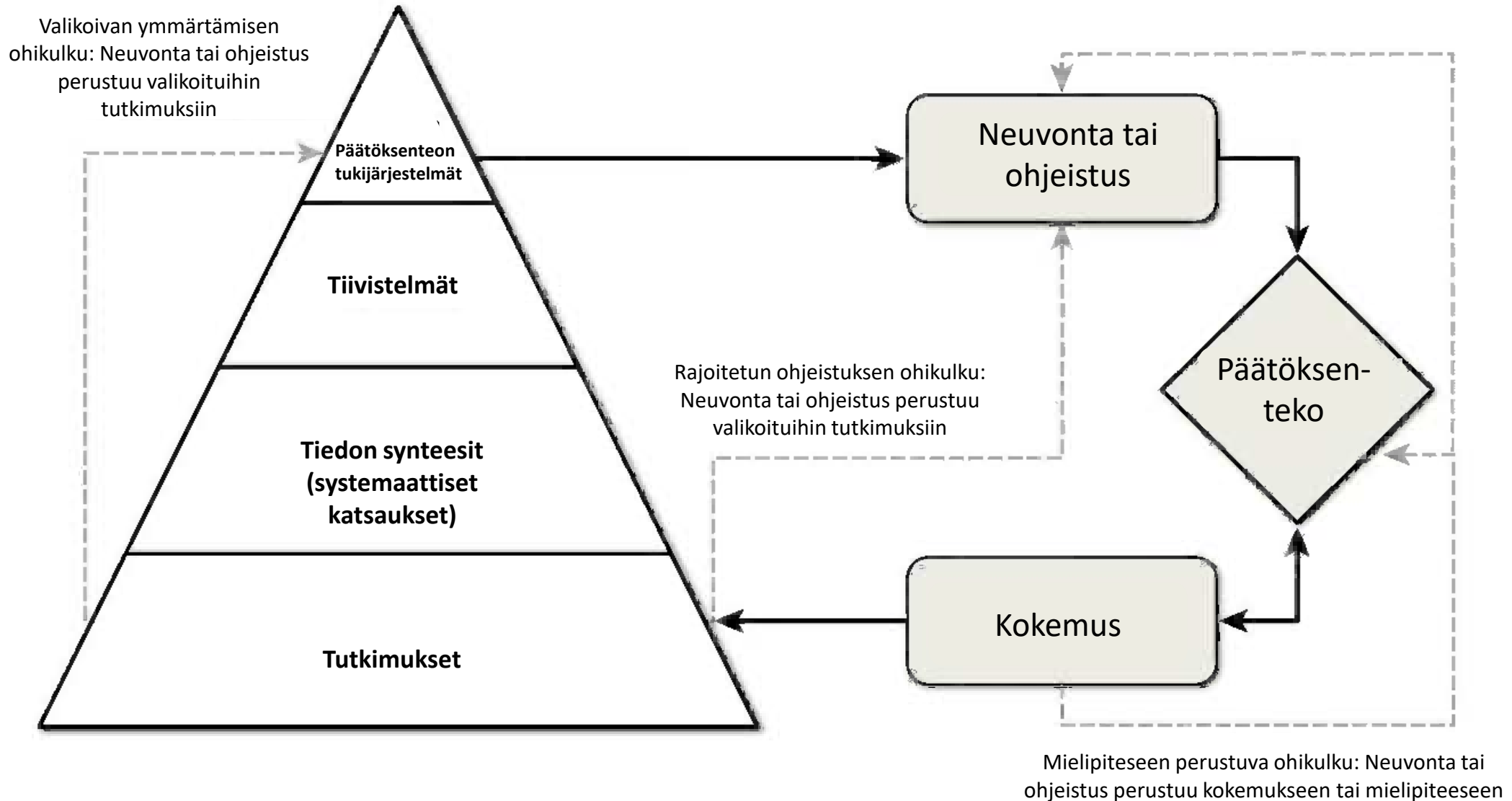
Dicks et al. 2014 TREE



Yksi ratkaisu tutkimuksen käytön parantamiseen

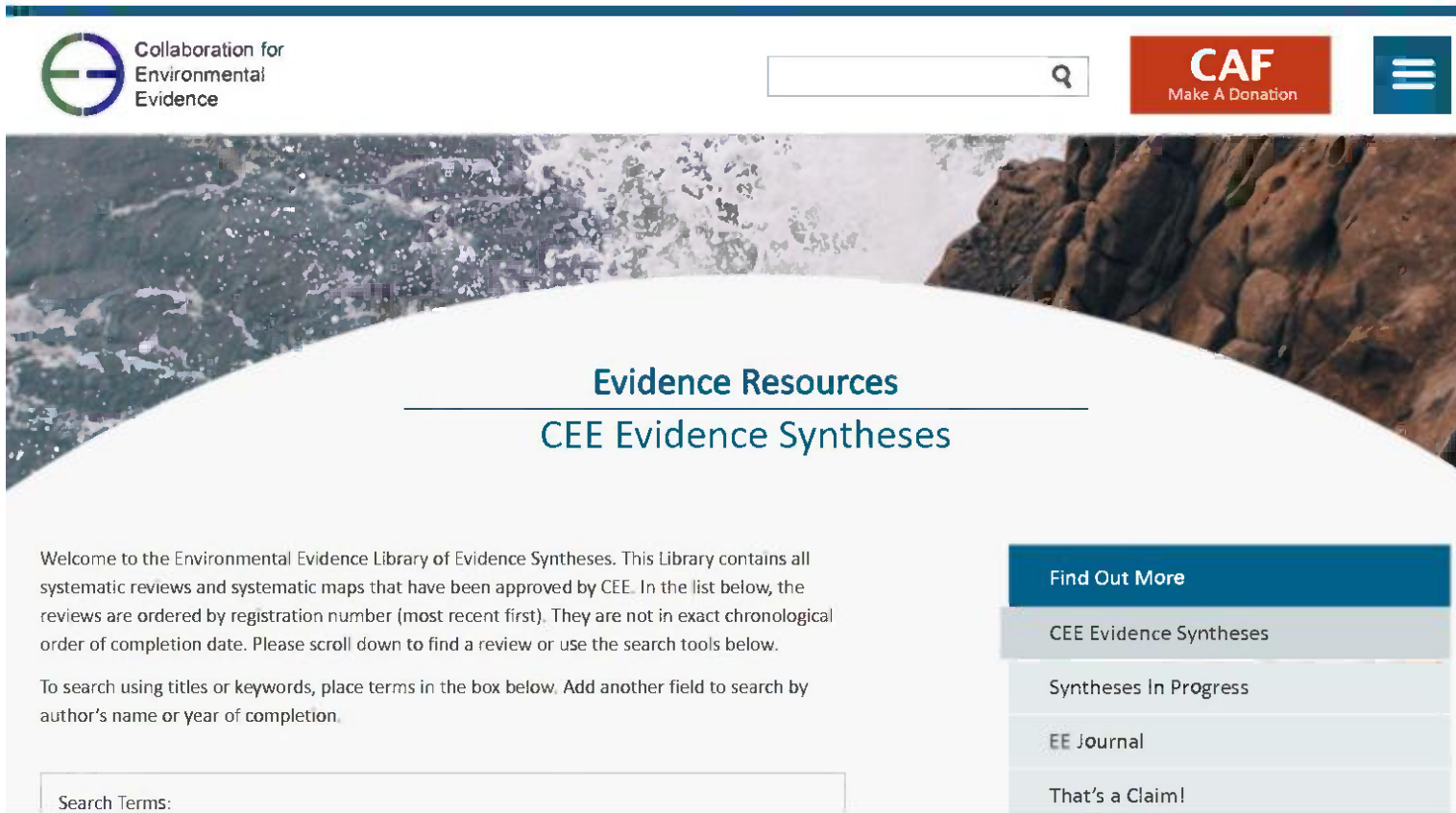
Tieteellisen näytön järjestäminen '4T' näytön pyramidin mukaisesti

Dicks et al. 2014 TREE



Systemaattinen katsaus

Systemaattinen katsaus kokoaa yhteen, arvioi kriittisesti ja tiivistää kaiken käytettävissä olevan näytön, joka liittyy kysymykseen. Tutkijat käyttävät ennalta määriteltäviä menetelmiä vääristymien minimoimiseksi ja tuottavat siten luotettavampia tuloksia, joita voidaan käyttää päätöksenteon tukena.



The screenshot shows the homepage of the Collaboration for Environmental Evidence (CEE) Evidence Syntheses website. The header features the CEE logo, a search bar, a 'CAF Make A Donation' button, and a menu icon. The main content area has a background image of a rocky coastline with the text 'Evidence Resources' and 'CEE Evidence Syntheses'. Below this, a welcome message explains the library's purpose and provides instructions on how to search for evidence syntheses. A search bar is located at the bottom left. On the right side, there is a 'Find Out More' section with links to 'CEE Evidence Syntheses', 'Syntheses In Progress', 'EE Journal', and 'That's a Claim!'.

Collaboration for Environmental Evidence

CAF Make A Donation

Evidence Resources

CEE Evidence Syntheses

Welcome to the Environmental Evidence Library of Evidence Syntheses. This Library contains all systematic reviews and systematic maps that have been approved by CEE. In the list below, the reviews are ordered by registration number (most recent first). They are not in exact chronological order of completion date. Please scroll down to find a review or use the search tools below.

To search using titles or keywords, place terms in the box below. Add another field to search by author's name or year of completion.

Search Terms:

Find Out More

- CEE Evidence Syntheses
- Syntheses In Progress
- EE Journal
- That's a Claim!

Systemaattinen katsaus: esimerkki

Jakobsson et al. *Environ Evid* (2018) 7:17
<https://doi.org/10.1186/s13750-018-0129-z>

Environmental Evidence

SYSTEMATIC REVIEW

Open Access



How does roadside vegetation management affect the diversity of vascular plants and invertebrates? A systematic review

Simon Jakobsson^{1*} , Claes Bernes², James M. Bullock³, Kris Verheyen⁴ and Regina Lindborg¹

Systemaattinen katsaus: esimerkki

Primary question

How does roadside maintenance and restoration implementing non-chemical vegetation removal affect the diversity of vascular plants and invertebrates?

Components of the primary question

Population: roadside habitats and the species of vascular plants and invertebrates found within them.

Intervention: maintenance or restoration of roadside habitats based on non-chemical vegetation removal such as mowing, grazing, burning, clearance of shrubs and saplings, coppicing, pruning, or mechanical removal of invasive plants.

Comparator: non-intervention or alternative forms of the interventions.

Outcomes: measures of functional/taxonomic diversity (including abundance) of vascular plants or invertebrates.

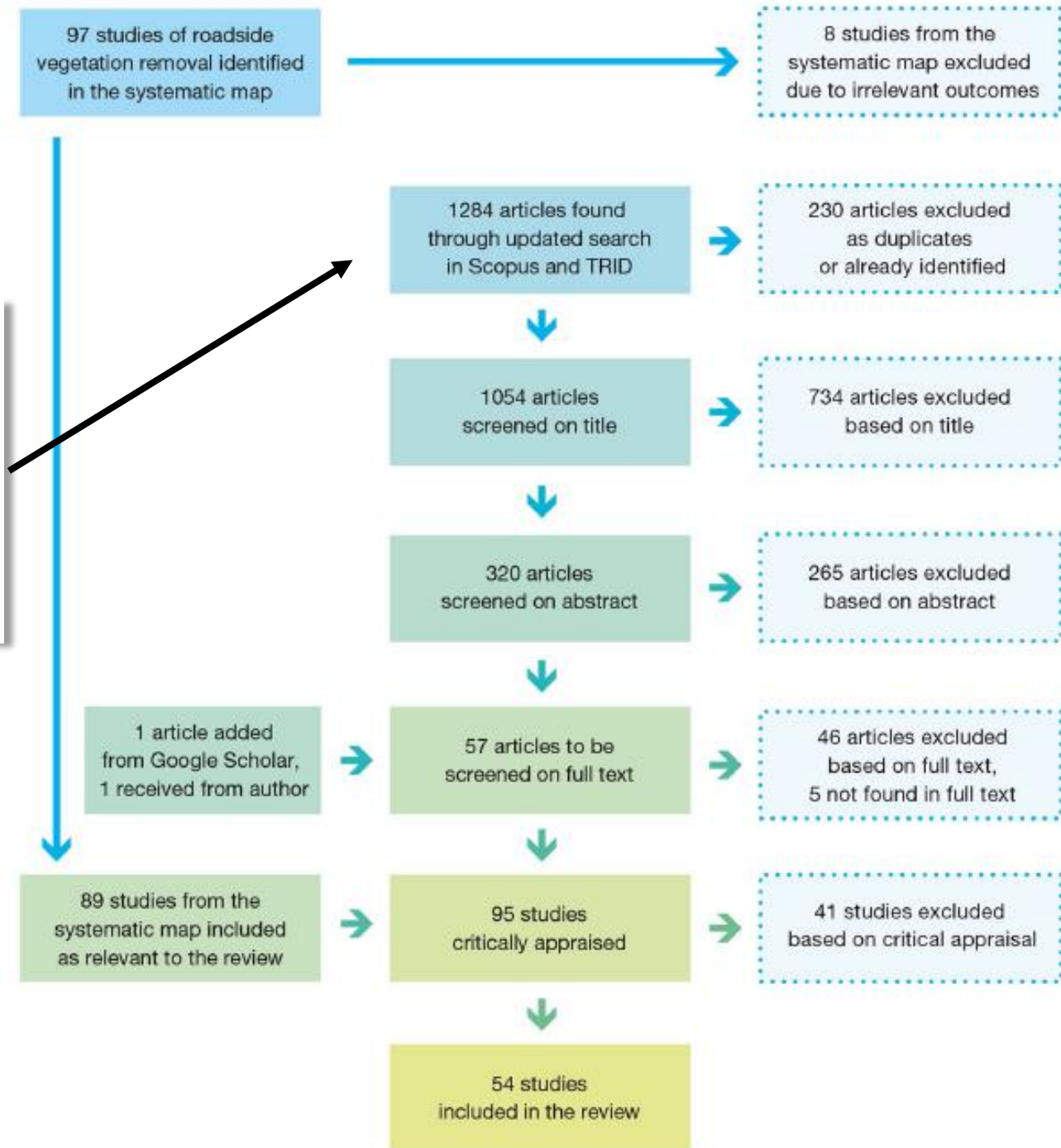


<http://www.lgam.info/roadside-mowing> CC BY-SA 3.0

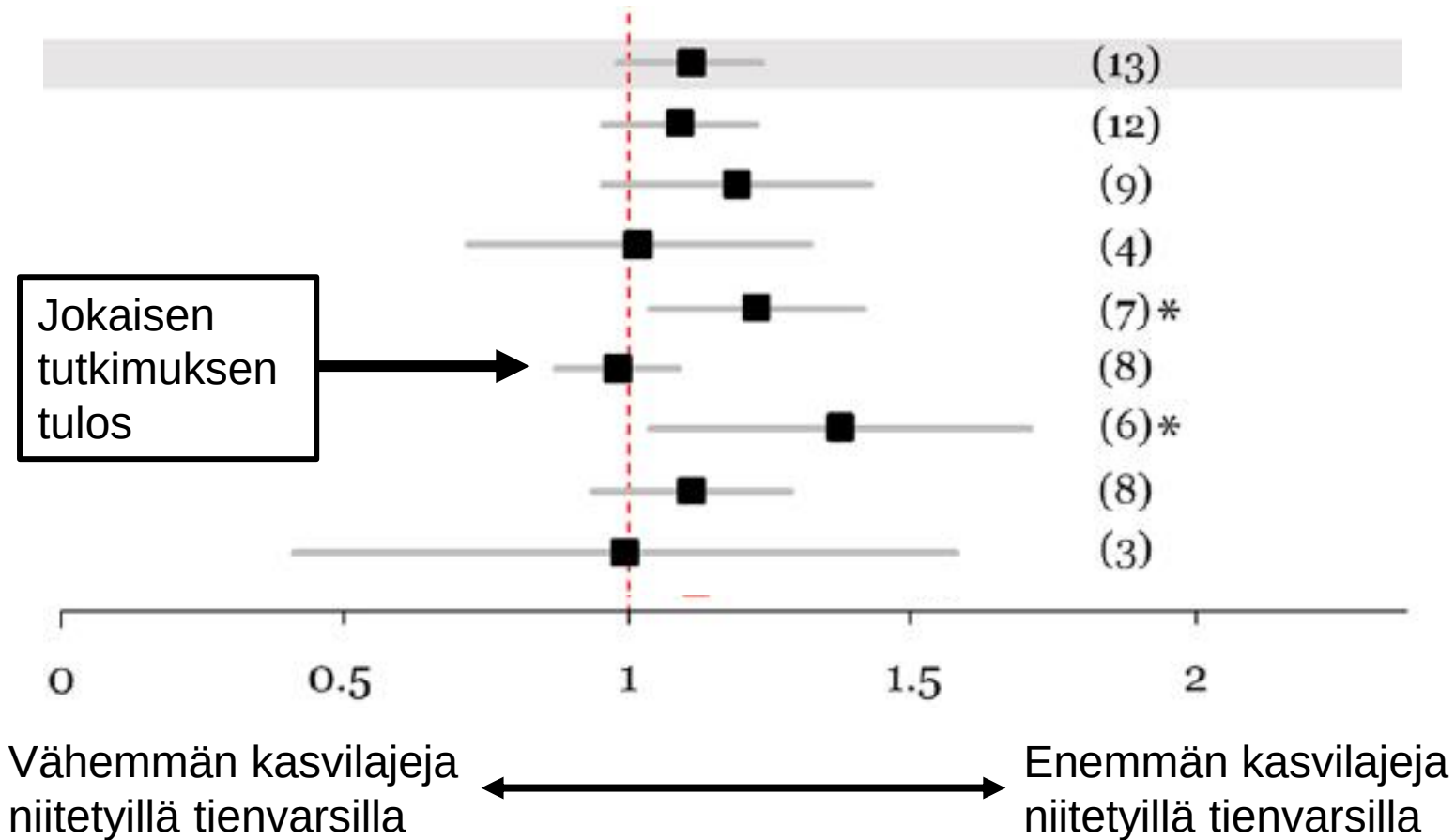
Systemaattinen katsaus: esimerkki

Population: roadside*, “road side*”, (road* AND (verge* OR edge*)), roundabout*, “traffic island*”, “median strip*”, “central reservation*”, boulevard*, parkway*, (avenue* AND tree*).

Outcomes: *diversity, species, abundance, vegetation.



Systemaattinen katsaus: esimerkki

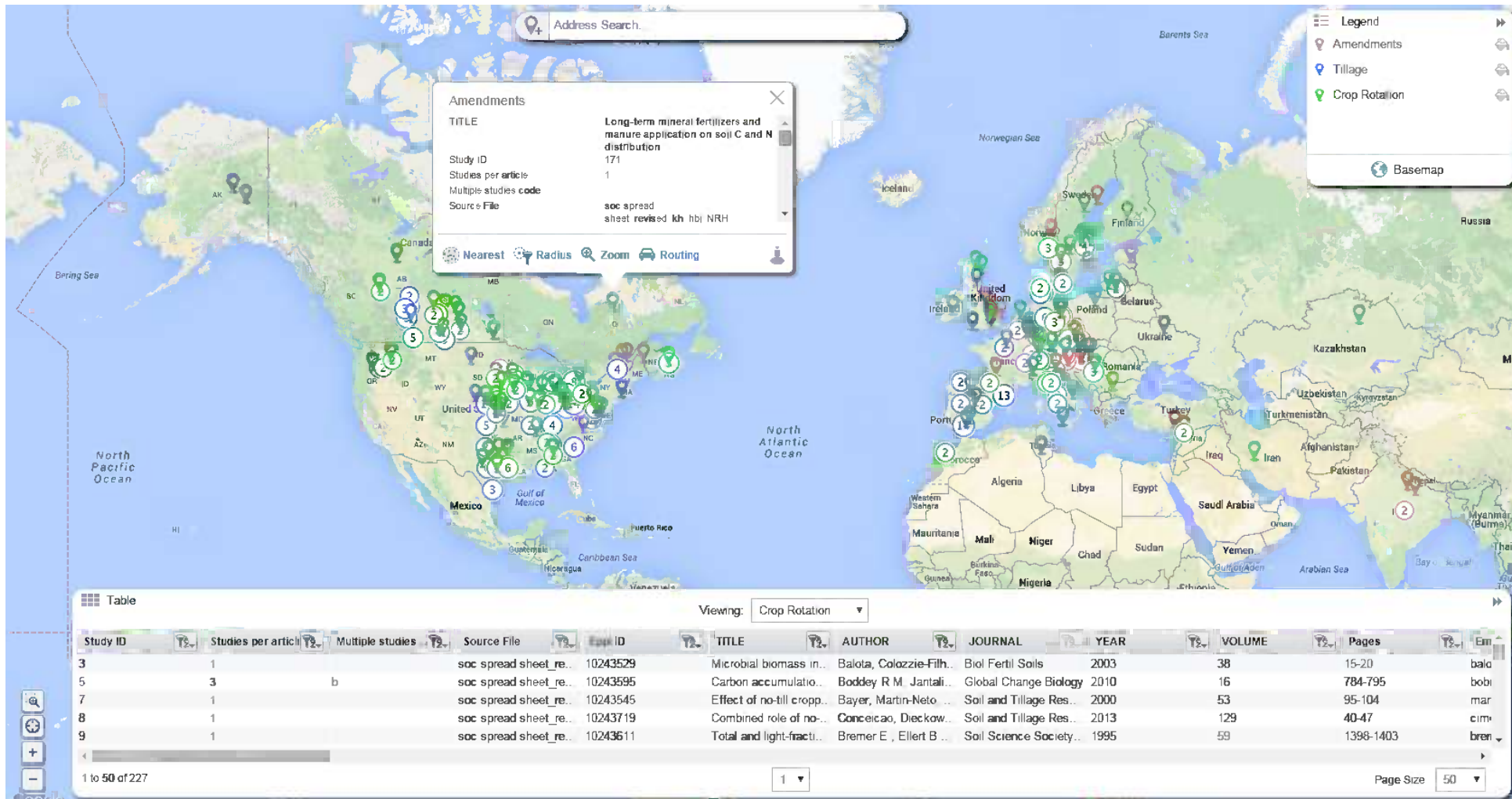


Niiton vaikutukset riippuivat niittotiheyden ja heinän poistamisen välisestä vuorovaikutuksesta. Näin ollen, niiton ja niittämättä jättämisen välillä ei ollut tilastollisesti merkitsevää kokonaisvaikutusta.

Systemaattinen kartoitus

- Menetelmiltään pitkälti samanlainen kuin systemaattinen katsaus, mutta keskittyy siihen mitä tutkimusta aiheesta on tehty.
- Kuvailee minkälaista näyttöä aiheesta on
- Lähtökohta useiden saman aihepiirin systemaattisten katsausten nopealle toteuttamiselle
- Keskeiset tulokset:
 - Interaktiivinen tietokanta, joka kuvailee tutkimukset
 - Näyttöä kuvaavat visualisoinnit / narratiivinen kuvaus: lämpökartat (heat maps), näyttökartastot (evidence atlases)

Esimerkki systemaattisesta kartoituksesta



Haddaway, N.R., Hedlund, K., Jackson, L.E. *et al.* What are the effects of agricultural management on soil organic carbon in boreo-temperate systems?. *Environ Evid* 4, 23 (2015). <https://doi.org/10.1186/s13750-015-0049-0>

Collaboration for Environmental Evidence

- CEE koordinoi metodologista ohjausta ja systemaattisten katsauksien ja kartoitusten julkaisua (mukaan lukien protokollat eli tutkimussuunnitelmat)
- Tuotokset perustuvat avoimuuteen, kattavuuteen, menettelylliseen objektiivisuuteen



The Cochrane Collaboration



THE CAMPBELL COLLABORATION

What helps? What harms? Based on what evidence?

Collaboration for Environmental Evidence

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Evidence Resources
CEE Evidence Syntheses

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CEE Evidence Syntheses

Conservation Evidence - hanke

Conservation Evidence

Providing evidence to improve practice

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Conservation Evidence in numbers

Over 600,000 scientific papers scanned



Click image to browse over 5,400 studies

Over 34,000 downloads of 'What Works in Conservation'



Over 1.25 million webpage views of www.conservationevidence.com



Browse by category:

 Amphibian Conservation 129 Actions	 Bat Conservation 190 Actions	 Bee Conservation 59 Actions
 Bird Conservation 454 Actions	 Control of Freshwater Invasive Species 119 Actions	 Farmland Conservation 119 Actions

See more

Conservation Evidence - hanke

Actions

Can't find what you're looking for? [You can also search Individual Studies.](#)
Not sure what Actions are? [Read a brief description.](#)

Refine results

Category
☒ Bird Conservation (454)

Keywords

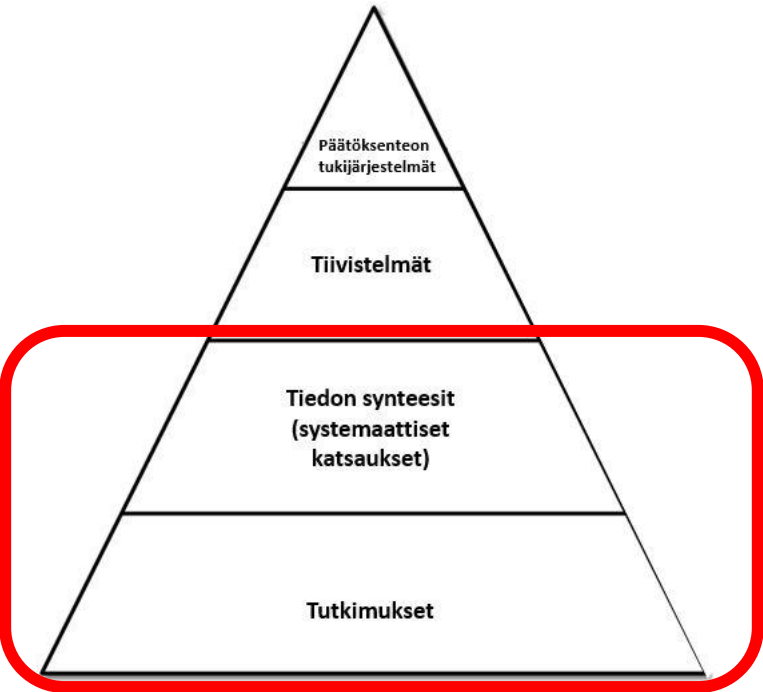
Habitat
☐ Artificial Habitats
☐ Forest & Woodland
☐ Coastal
[More ▾](#)

Threat

454 actions found

Sort by: Number of studies ▲ Relevance Title

☐ Provide artificial nesting sites for songbirds ● Beneficial Based on: 65 studies	
☐ Plant wild bird seed or cover mixture ● Beneficial Based on: 40 studies	
☐ Provide supplementary food for songbirds to increase reproductive success ● Likely to be beneficial Based on: 37 studies	
☐ Provide supplementary food for songbirds to increase adult survival ● Beneficial Based on: 34 studies	
☐ Pay farmers to cover the costs of bird conservation measures ● Likely to be beneficial Based on: 30 studies	



Conservation Evidence - hanke

Supporting evidence from individual studies

1 ↗

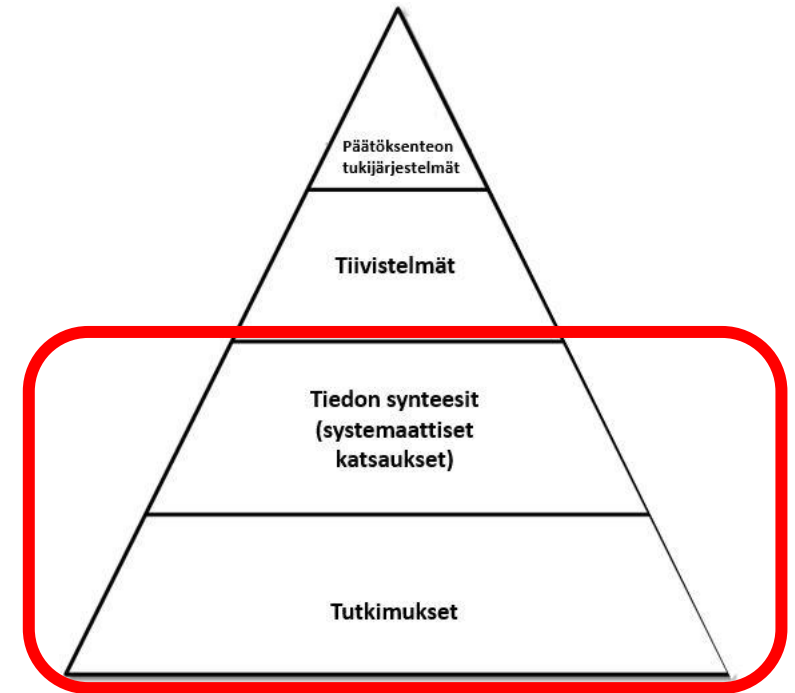
A replicated study in 1945-6 in garden habitats in Ohio, USA (Calhoun 1948), found that American robins *Turdus migratorius* nesting in artificial nests had lower success rates than those natural nests (33% success for 24 nesting attempts in artificial nests vs. 50% of 48 in natural nests). Fourteen pairs of robins used the nests, but only seven successfully raised chicks. Nests consisted of cones of black or green roofing paper 17.8 cm at the widest and 5.1 cm deep. This study also examines nest use by mourning doves *Zenaida macroura* (formerly *Zenaidura macroura*), and the effect of different coloured nests in 'Use differently-coloured artificial nests'.

2 ↗

A controlled study in mixed farmland in north-east Scotland in 1971 (Yom-Tov 1974) found that carrion crows *Corvus corone* did not nest in artificial trees, irrespective of whether they were provided with supplementary food or not. In one experiment, a line of 15 artificial trees (3-6 m branches tied to fence posts and provided with an old crow's nest) were set up, approximately 70 m apart. Two pairs of crows established territories, but neither attempted to breed. A second experiment provided a single artificial tree in two occupied territories, 70 m from the tree used by the resident pair. Neither artificial tree was used, as the resident pairs successfully defended their territories. This study also investigated the effects of supplementary feeding on crow reproduction, discussed in 'Provide supplementary food to increase reproductive success'.

3 ↗

A small study in 1976-9 in three scrub and grassland habitats in Idaho, USA (Howard & Hilliard 1980), found that common ravens *Corvus corax* nested on nesting platforms provided, with four pairs using them in 1976, but only a single attempt in 1979. An average of 2.8 chicks/nest were produced. Twenty four platforms were provided in shaded/un-shaded pairs, with 23 out of 29 young fledged from shaded platforms. This study also discusses platform use by ferruginous hawks *Buteo regalis*, discussed in



Conservation Evidence - hanke

Yhteenvedot

Bird Conservation

Global evidence for the effects of interventions



David R. Williams, Robert G. Pople, David A. Showler, Lynn V. Dicks
Matthew F. Child, Erasmus K.H.J. zu Ermgassen and William J. Sutherland

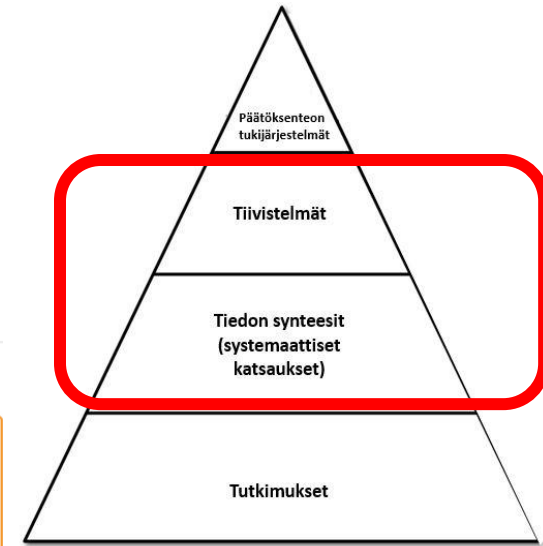


SYNOPSIS OF CONSERVATION EVIDENCE SERIES

Action: Provide artificial nesting sites for songbirds

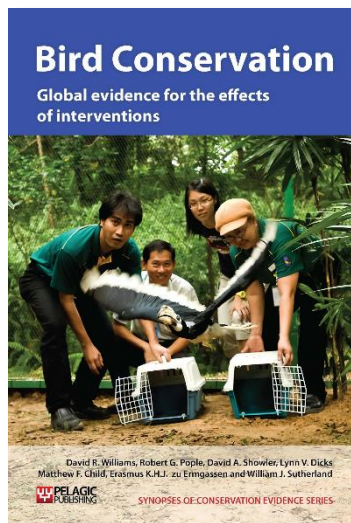
Key messages Read our guidance on Key messages before continuing

- Only three studies out of 66 from across the world found low rates of nest box occupancy, although this may be partially the result of publishing biases. Thrushes, crows, swallows and New World warblers were the target species with low rates of use. Thrushes, crows, finches, swallows, wrens, tits, Old World and tyrant flycatchers, New World blackbirds, sparrows, waxbills, starlings and ovenbirds all used nest boxes. One study from the USA found that wrens used nest boxes more frequently than natural cavities.
- Five studies from across the world found higher population densities or population growth rates in areas with nest boxes, whilst one study from the USA found higher species richness in areas with nest boxes. One study from Chile found that breeding populations (but not non-breeding populations) were higher for two species when nest boxes were provided.
- Twelve studies from across the world found that productivity of birds in nest boxes was higher or similar to those in natural nests. One study found there were more nesting attempts in areas with more nest boxes, although a study from Canada found no differences in behaviour or productivity between areas with high or low densities of nest boxes. Two studies from Europe found lower predation of some species using nest boxes. However, three studies from the USA found low production in nest boxes, either in absolute terms or relative to natural nests.
- Thirteen studies from across the world found that use, productivity or usurpation varied with nest box design, whilst seven found no difference in occupation rates or success with different designs.
- Similarly, fourteen studies found different occupation or success rates depending on the position or orientation of artificial nest sites. Two studies found no difference in success with different positions.

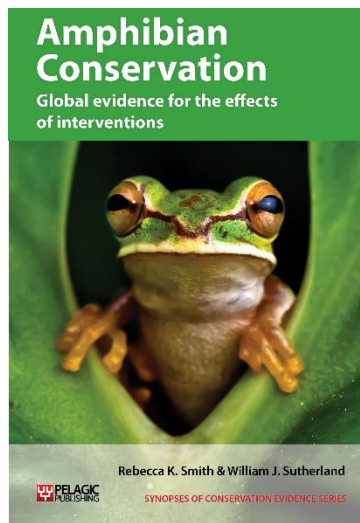


Conservation Evidence - hanke

454 toimea



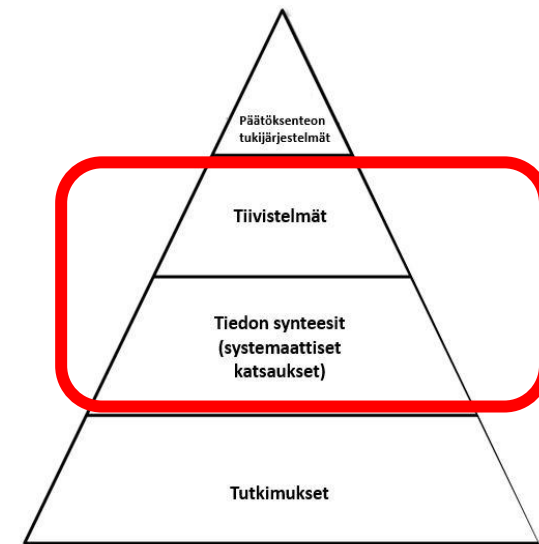
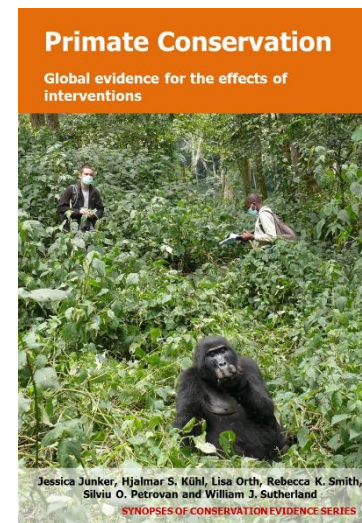
129 toimea



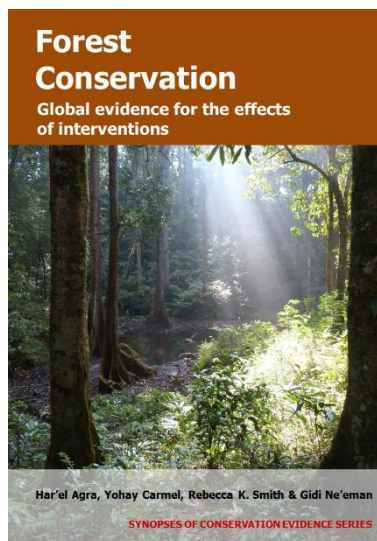
190 toimea



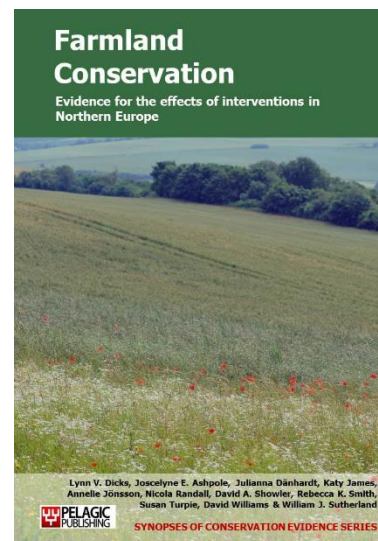
162 toimea



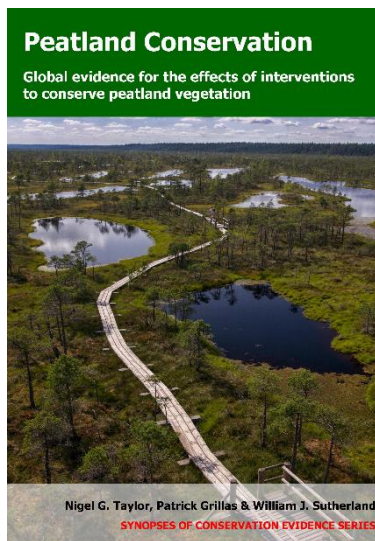
122 toimea



119 toimea



125 toimea



161 toimea



... Ja jonka tarkoituksena on kattaa kaikkiin elinympäristöihin ja taksoneihin liittyvät suojelutoimet neljän vuoden kuluessa

Conservation Evidence - hanke

Action: Provide artificial nesting sites for songbirds

66 tutkimusta muodostavat näytön

Supporting evidence from individual studies

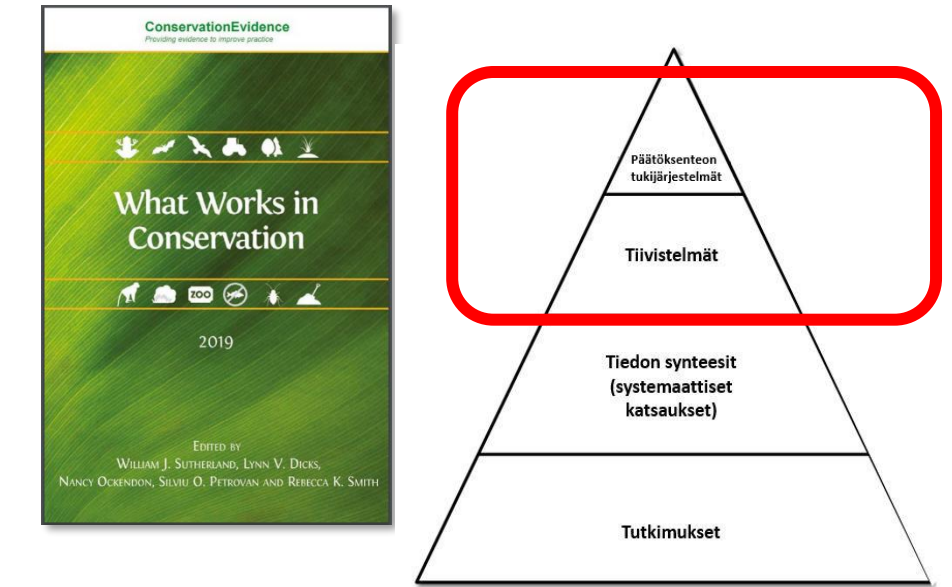
1  A replicated study in 1945-6 in garden habitats in Ohio, USA (Calhoun 1948), found that American robins *Turdus migratorius* nesting in artificial nests had lower success rates than those natural nests (33% success for 24 nesting attempts in artificial nests vs. 50% of 48 in natural nests). Fourteen pairs of robins used the nests, but only seven successfully raised chicks. Nests consisted of cones of black or green roofing paper 17.8 cm at the widest and 5.1 cm deep. This study also examines nest use by mourning doves *Zenaidura macroura* (formerly *Zenaidura macroura*), and the effect of different coloured nests in 'Use differently-coloured artificial nests'.

2  A controlled study in mixed farmland in north-east Scotland in 1971 (Yom-Tov 1974) found that carrion crows *Corvus corone* did not nest in artificial trees, irrespective of whether they were provided with supplementary food or not. In one experiment, a line of 15 artificial trees (3-6 m branches tied to fence posts and provided with an old crow's nest) were set up, approximately 70 m apart. Two pairs of crows established territories, but neither attempted to breed. A second experiment provided a single artificial tree in two occupied territories, 70 m from the tree used by the resident pair. Neither artificial tree was used, as the resident pairs successfully defended their territories. This study also investigated the effects of supplementary feeding on crow reproduction, discussed in 'Provide supplementary food to increase reproductive success'.

3  A small study in 1976-9 in three scrub and grassland habitats in Idaho, USA (Howard & Hilliard 1980), found that common ravens *Corvus corax* nested on nesting platforms provided, with four pairs using them in 1976, but only a single attempt in 1979. An average of 2.8 chicks/nest were produced. Twenty four platforms were provided in shaded/un-shaded pairs, with 23 out of 29 young fledged from shaded platforms. This study also discusses platform use by ferruginous hawks *Buteo regalis*, discussed in

Asiantuntija-arvio
Delphi-menetelmää
käyttäen

Effectiveness: 67%
Certainty: 85%
Harms: 0%



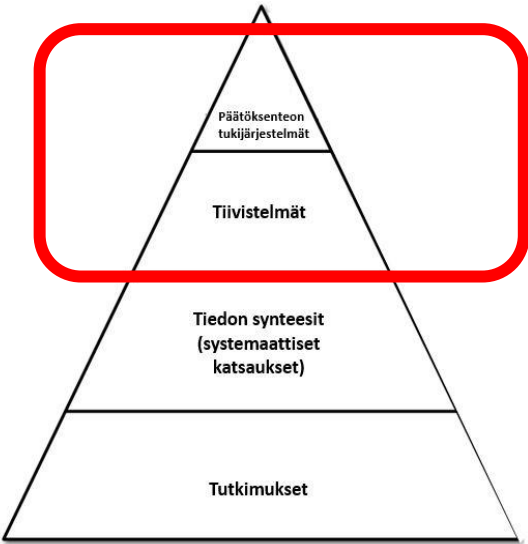
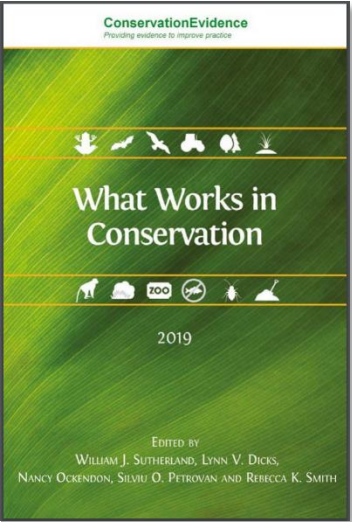
Categories	Effectiveness score	Certainty score	Harms score
Beneficial	>60	>60	<20
Likely to be beneficial	>60	40 – 60	<20
OR	40 - 60	≥40	<20
Trade-offs between benefits & harms	≥40	≥40	≥20
Unknown effectiveness	Any score	<40	Any score
Unlikely to be beneficial	<40	40-60	<20
Likely to be ineffective or harmful	<40	>60	Any score
OR	<40	≥40	≥20

Conservation Evidence - hanke

56 actions found

Sort by: Number of studies Relevance ▼ Title

☐	Provide artificial nesting sites for songbirds	Beneficial Based on: 65 studies	
☐	Provide artificial nesting sites for raptors	Likely to be beneficial Based on: 9 studies	
☐	Provide artificial nesting sites for woodpeckers	Unknown effectiveness (limited evidence) Based on: 11 studies	
☐	Use vocalisations to attract birds to safe areas	Likely to be beneficial Based on: 10 studies	
☐	Provide artificial nesting sites for wildfowl	Beneficial Based on: 27 studies	
☐	Provide supplementary food for songbirds to increase reproductive success	Likely to be beneficial Based on: 37 studies	



Conservation Evidence - hanke

Actions

Can't find what you're looking for? [You can also search Individual Studies.](#)

Not sure what Actions are? [Read a brief description.](#)

Refine results

Category
☒ Bird Conservation (3)

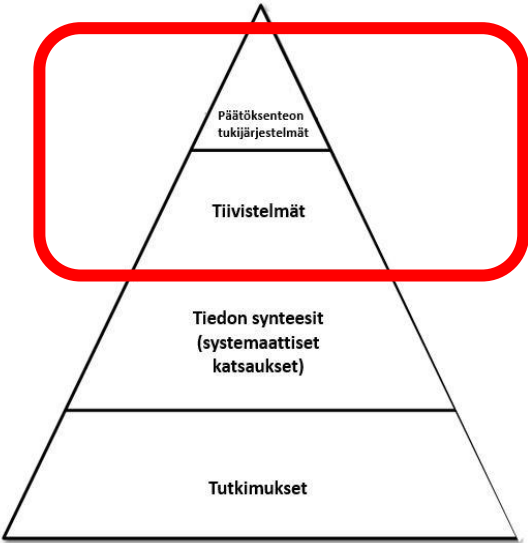
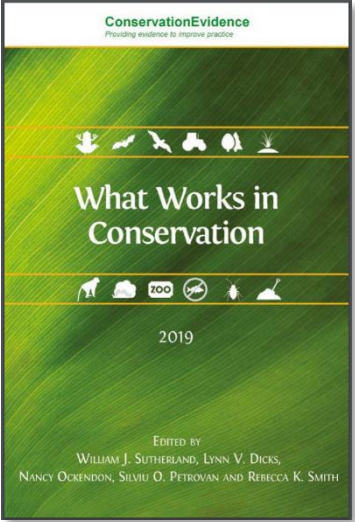
Keywords

Habitat

3 actions found

Sort by: Number of studies

- ☐ Physically protect nests with individual exclosures/barriers or provide shelters for chicks of ground nesting seabirds
Likely to be beneficial | Based on: 4 studies
- ☐ Provide artificial nesting sites for ground and tree-nesting seabirds
Likely to be beneficial | Based on: 11 studies
- ☐ Use signs and access restrictions to reduce disturbance at nest sites
Likely to be beneficial | Based on: 10 studies



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Conservation Evidence - hanke

Names - common, scientific, regions etc...

Advanced

About

Assessment process

Resources & Publications

Eurasian Curlew

Numenius arquata

CITATION
BirdLife International
e.T22693190A1
3.RLTS.T226931

Download

NOT EVALUATED

DATA DEFICIENT

LEAST CONCERN

NEAR THREATENED

VULNERABLE

POPULATION TREND
Decreasing

NUMBER OF MATURE INDIVIDUALS
Population in detail

HABITAT AND ECOLOGY

Images and External Links

CITES Legislation from Species+

Conservation Evidence

Expand all

Studies and Actions from Conservation Evidence

DATA SOURCE
The information below is from the [Conservation Evidence](#) website.

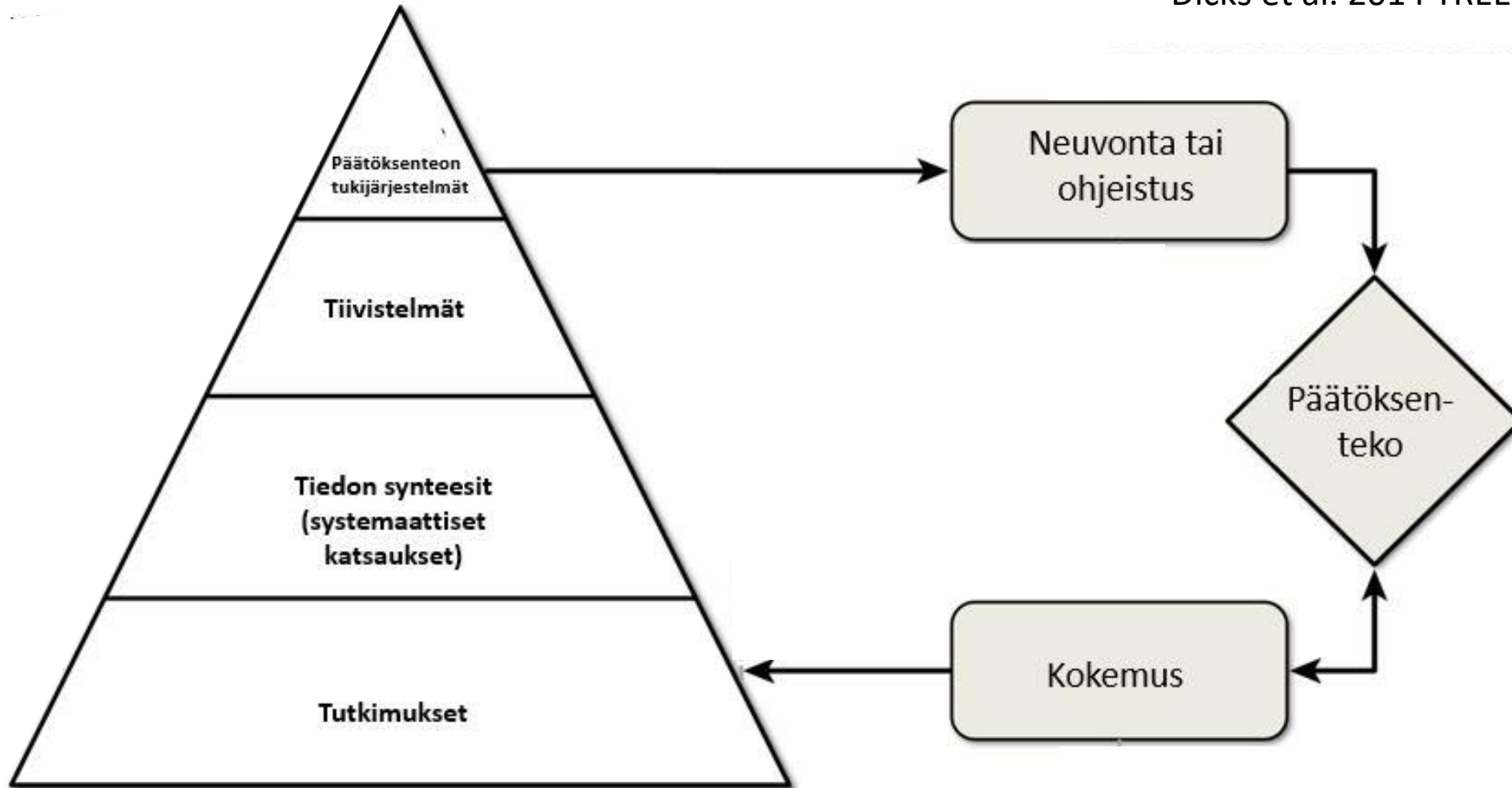
▼ Studies and Actions from Conservation Evidence in detail

SEARCH TERM: "NUMENIUS ARQUATA" (SHOWING 8 OF 8)

Studies	Actions
Nest predation and numbers of golden plovers <i>Pluvialis apricaria</i> and other moorland waders Show	Control predators not on islands for waders Show
Artificial feeding to attract wild birds close to a viewing area at Belfast Lough RSPB Reserve, Antrim, Northern Ireland Show	- Provide supplementary food for waders to increase adult survival Show - Provide supplementary food for wildfowl to increase adult survival Show
Botanical monitoring of restored lowland wet grassland at Campfield Marsh RSPB Reserve, Cumbria, England Show	- Raise water levels in ditches or grassland Show - Raise water levels in ditches or grassland Show
Rush cutting to create nesting patches for lapwings <i>Vanellus vanellus</i> and other waders, Lower Lough Erne RSPB reserve, County Fermanagh, Northern Ireland Show	Mow or cut semi-natural grasslands/pastures Show
The effectiveness of different methods to deter large gulls <i>Larus</i> spp. from competing with nesting terns <i>Sterna</i> spp. on Coquet Island RSPB reserve, Northumberland, England Show	Reduce inter-specific competition for nest sites of ground nesting seabirds by removing competitor species Show
The recent declines of farmland bird populations in Britain: an appraisal of causal factors and conservation actions Show	- Pay farmers to cover the cost of conservation measures (as in agri-environment schemes) Show - Pay farmers to cover the costs of bird conservation measures Show
Some effects of set-aside on breeding birds in northeast Scotland Show	- Provide or retain set-aside areas in farmland Show - Provide or retain set-aside areas in farmland Show
Habitat restoration for curlew <i>Numenius arquata</i> at the Lake Vyrnwy reserve, Wales Show	

Tiivistelmä tiedon synteestä

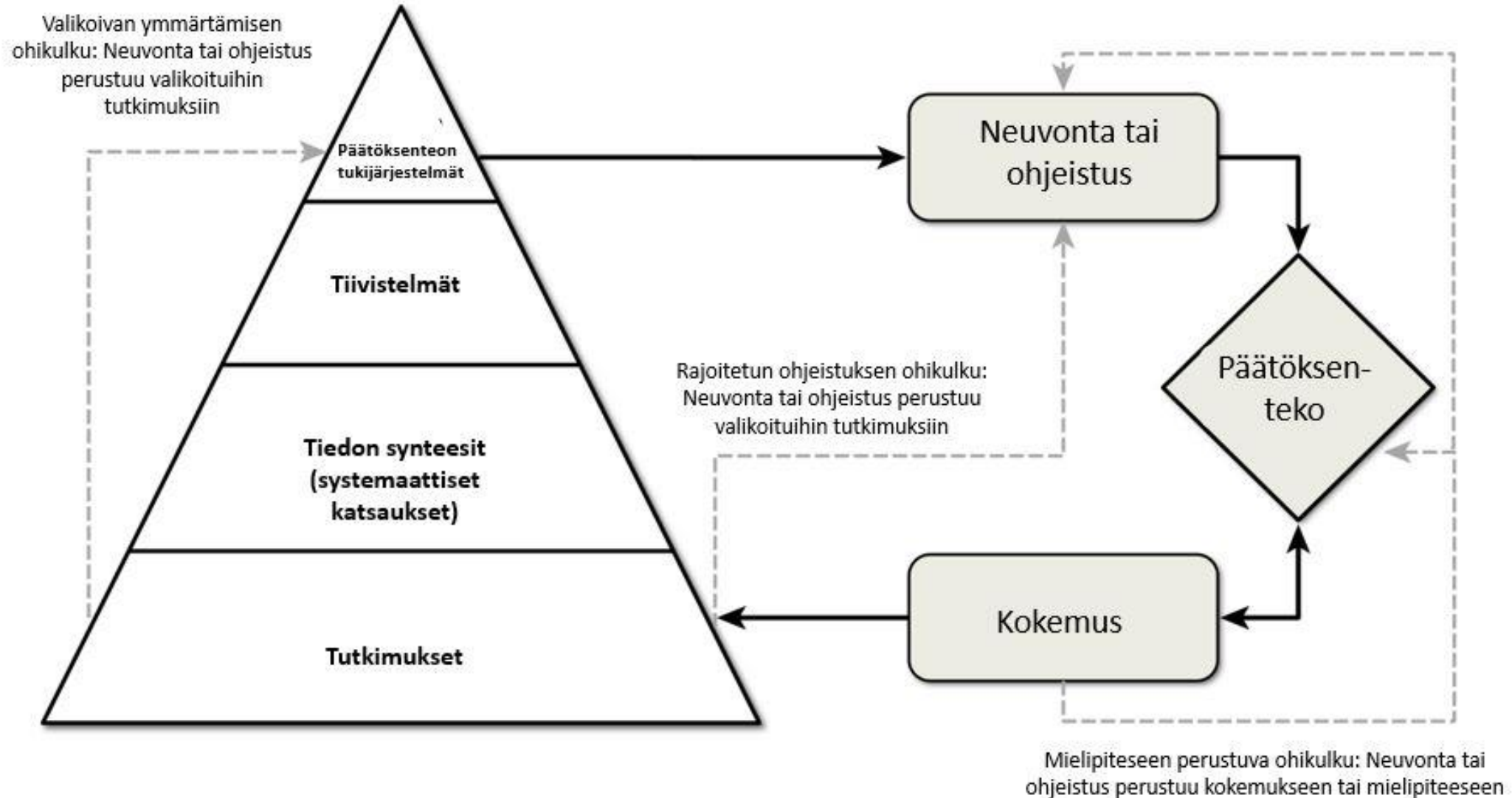
Dicks et al. 2014 TREE



Tiivistelmä tiedon synteestistä

(ja ohikulkua, joita välttää)

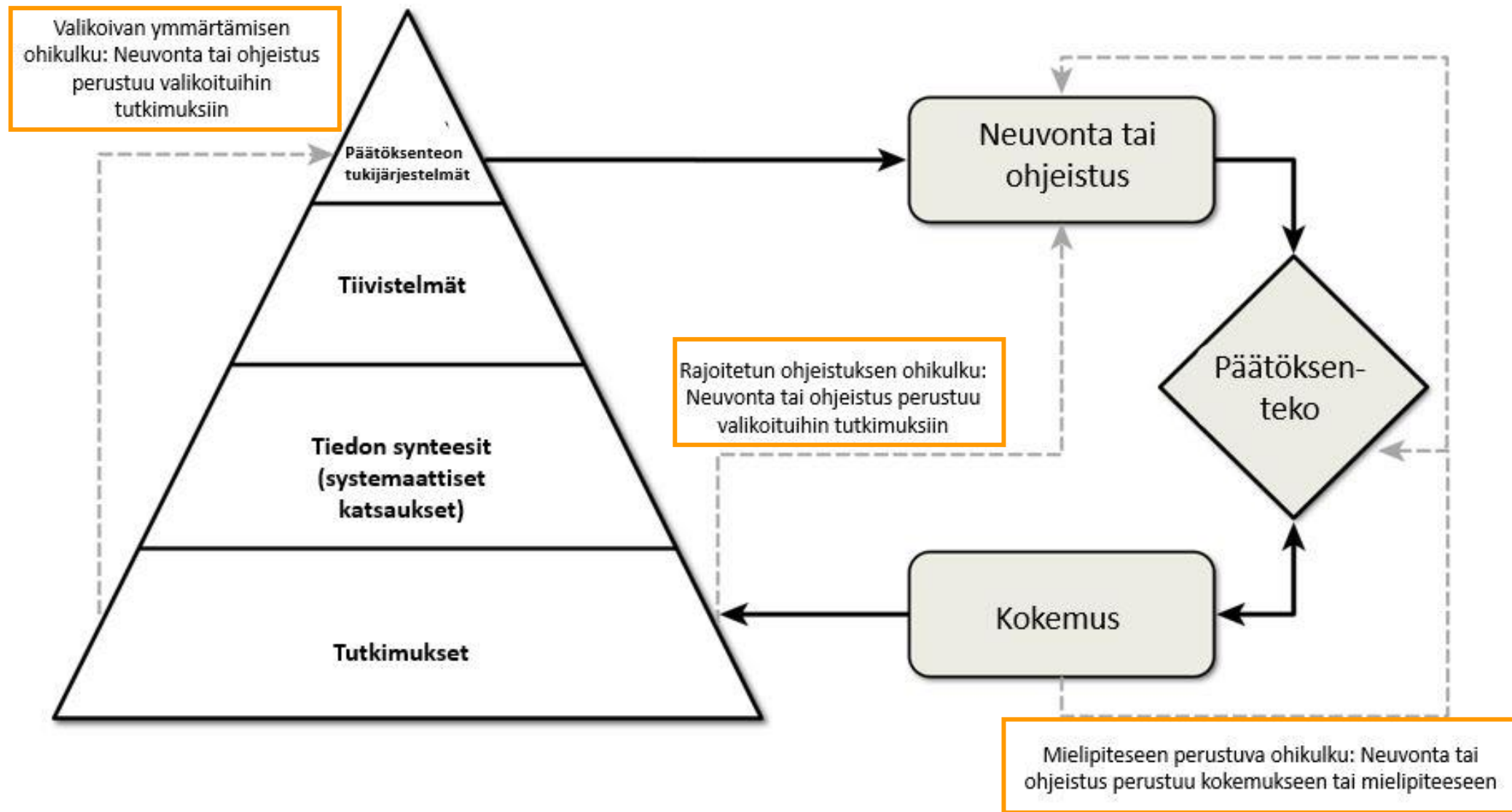
Dicks et al. 2014 TREE



Tiivistelmä tiedon synteesisistä

(ja ohikulkua, joita välttää)

Dicks et al. 2014 TREE



Haasteita tiedon synteessissä

 Collaboration for Environmental Evidence

CAF
Make A Donation

☰



Evidence Resources

CEE Evidence Syntheses

Welcome to the Environmental Evidence Library of Evidence Syntheses. This Library contains all systematic reviews and systematic maps that have been approved by CEE. In the list below, the reviews are ordered by registration number (most recent first). They are not in exact chronological order of completion date. Please scroll down to find a review or use the search tools below.

To search using titles or keywords, place terms in the box below. Add another field to search by author's name or year of completion.

Find Out More

CEE Evidence Syntheses

Syntheses In Progress

EE Journal

That's a Claim!

Conservation Evidence

Providing evidence to improve practice



Browse Evidence

Journal

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Resources

Conservation Evidence in numbers

Over 600,000 scientific papers scanned



Click image to browse over 5,400 studies

Over 34,000 downloads of 'What Works in Conservation'



Over 1.25 million webpage views of www.conservationevidence.com



Browse by category:

 Amphibian Conservation
129 Actions

 Bat Conservation
190 Actions

 Bee Conservation
59 Actions

 Bird Conservation
454 Actions

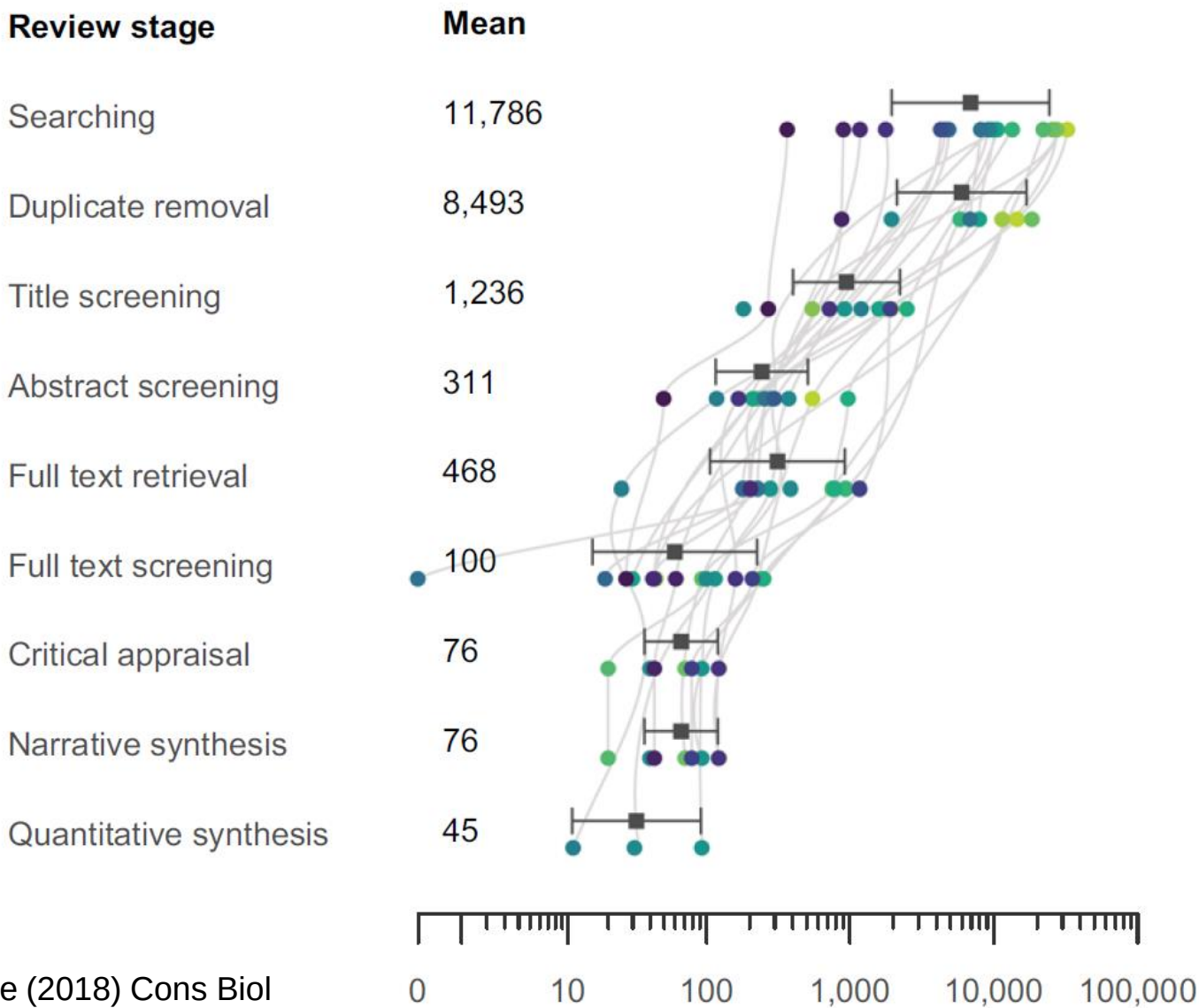
 Control of Freshwater Invasive Species
190 Actions

 Farmland Conservation
119 Actions

See more

Haasteita: aika ja vaivannäkö

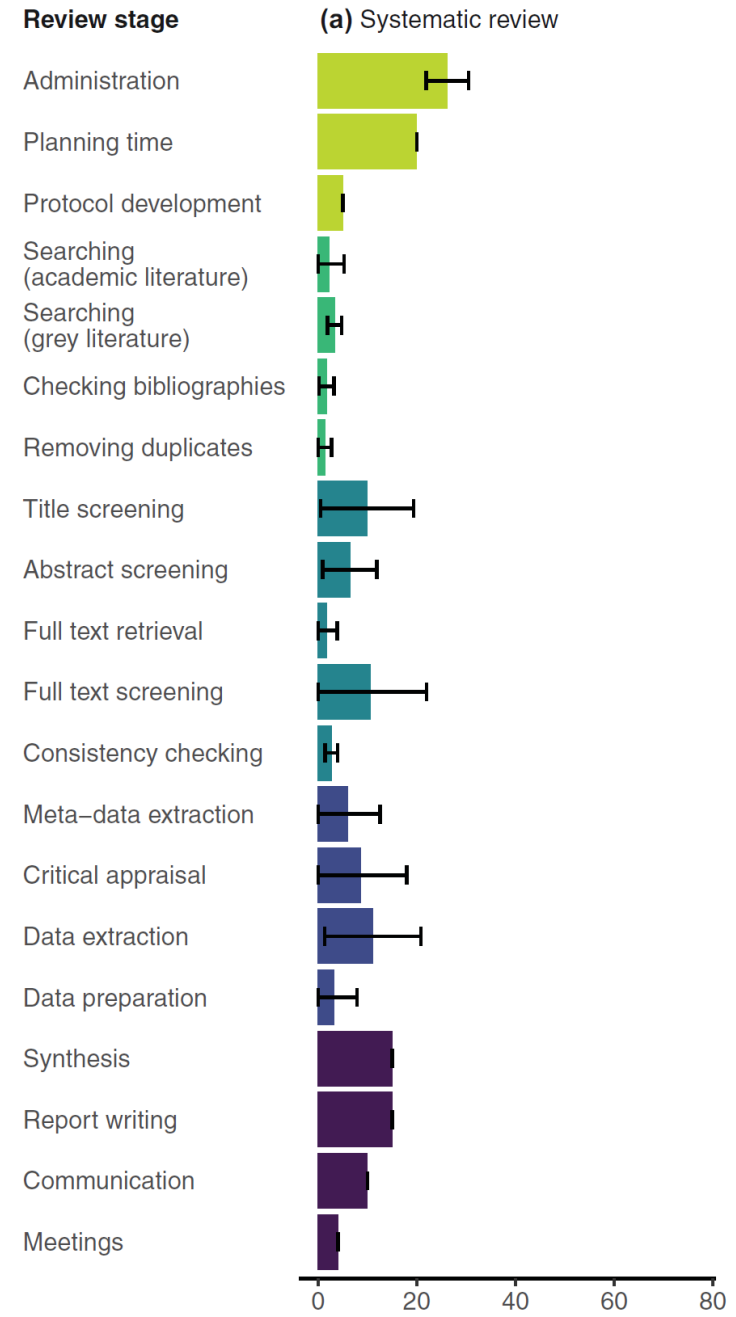
Käsiteltyjen artikkelien lukumäärä systemaattisen katsauksen jokaisessa vaiheessa



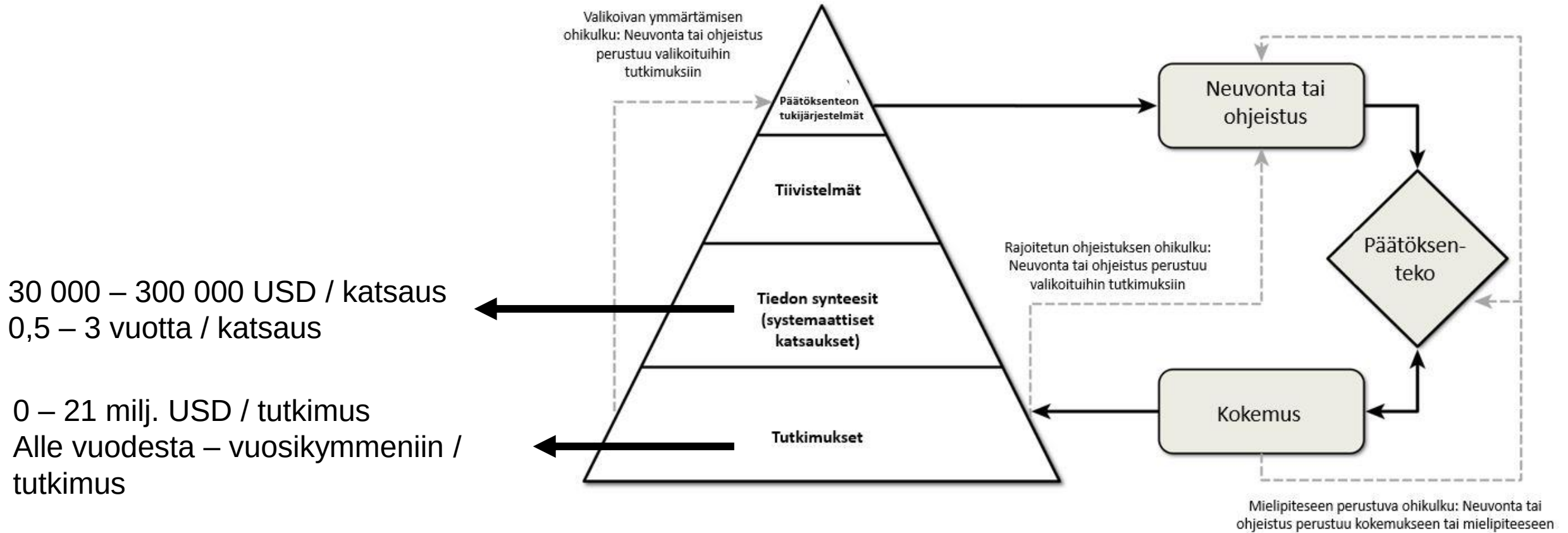
Haasteita: aika ja vaivannäkö

Jokaista systemaattisen katsauksen vaiheen toteutusta varten käytettyjen päivien määrä

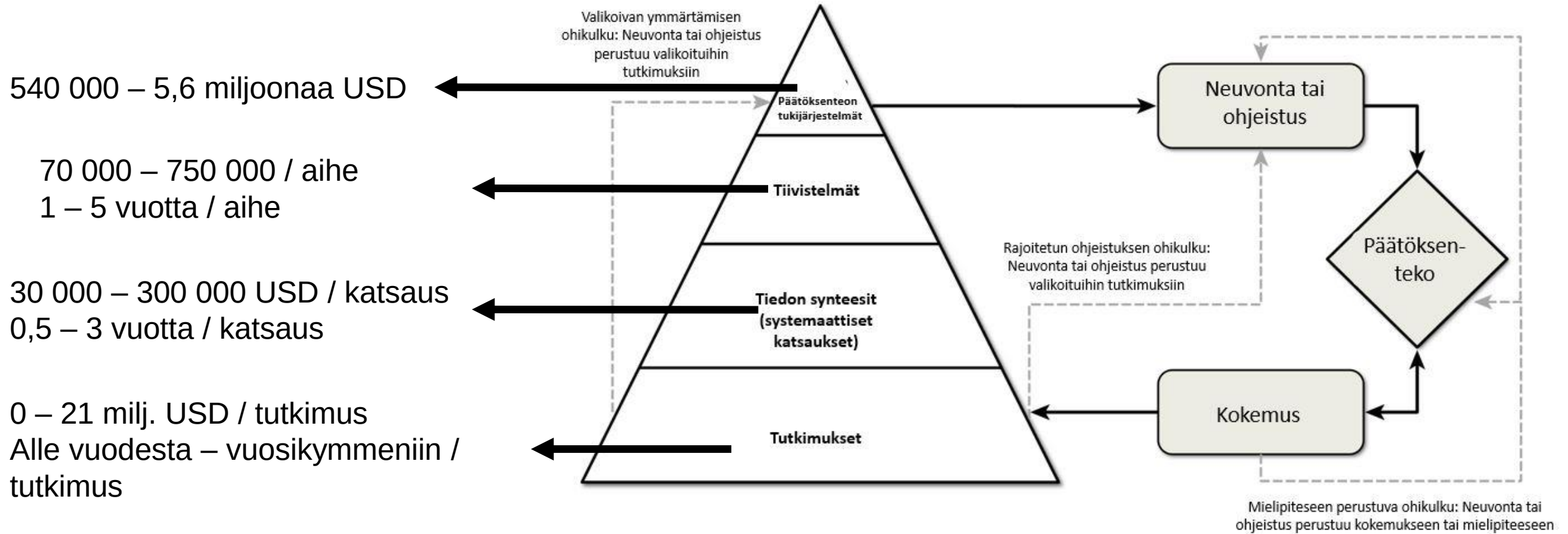
164 kokonaista henkilötyöpäivää:
jotta voidaan vastata
kysymykseen kuten
*Onko tienvarren kasvillisuuden
hoidolla vaikutusta luonnon
monimuotoisuuteen vai ei?*



Haasteita: aika ja vaivannäkö



Haasteita: aika ja vaivannäkö



Haasteita: alueelliset tietoaукот

Action: Provide artificial nesting sites for songbirds



Key messages [Read our guidance on Key messages before continuing](#)

- Only three studies out of 66 from across the world found [low rates](#) of nest box occupancy, although this may be partially the result of publishing biases. Thrushes, crows, swallows and New World warblers were the target species with low rates of use. Thrushes, crows, finches, swallows, wrens, tits, Old World and tyrant flycatchers, New World blackbirds, sparrows, waxbills, starlings and ovenbirds all used nest boxes. One study from the [USA](#) found that wrens used nest boxes more frequently than natural cavities.
- [Five studies](#) from across the world found higher population densities or population growth rates in areas with nest boxes, whilst one study from the [USA](#) found higher species richness in areas with nest boxes. One study from [Chile](#) found that breeding populations (but not non-breeding populations) were higher for two species when nest boxes were provided.
- [Twelve studies](#) from across the world found that productivity of birds in nest boxes was higher or similar to those in natural nests. One [study](#) found there were more nesting attempts in areas with more nest boxes, although a study from [Canada](#) found no differences in behaviour or productivity between areas with high or low densities of nest boxes. Two studies from [Europe](#) found lower predation of some species using nest boxes. However, three studies from the [USA](#) found low production in nest boxes, either in absolute terms or relative to natural nests.
- Thirteen studies from across the world found that [use](#), [productivity](#) or [usurpation](#) varied with nest box design, whilst seven found no difference in [occupation rates](#) or [success](#) with different designs.

Overall Effectiveness Category:

Beneficial

Effectiveness: 67%

Certainty: 85%

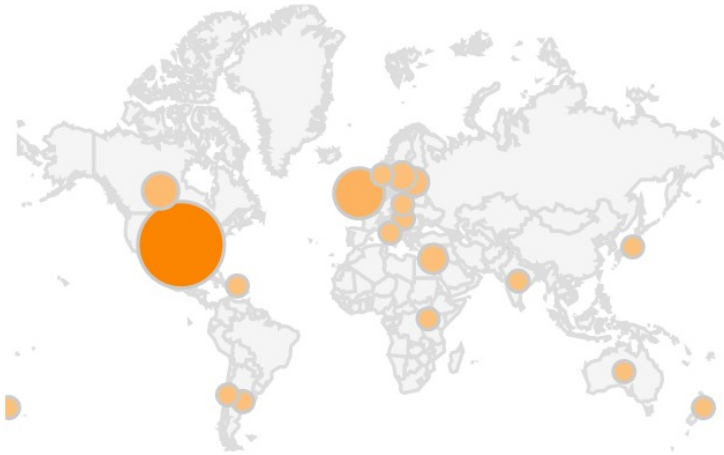
Harms: 0%

Where has this evidence come from?

Bird Conservation [View all](#)

Click [here](#) to see the list of journals searched for this synopsis, and [here](#) to see all the journals searched for all synopses.

Source countries



Haasteita: alueelliset tietoaукот



Actions

Can't find what you're looking for? [You can also search Individual Studies.](#)

Not sure what Actions are? [Read a brief description.](#)

Refine results

Category

☒ Bird Conservation (36)

Keywords

skylark

Habitat

☐ Artificial Habitats

☐ Grassland

☐ Wetlands

More ▾

Threat

☐ Agriculture & aquaculture

☐ Natural system modifications

36 actions found

☐ Create skylark plots for bird conservation

Likely to be beneficial | Based on: 7 studies

☐ Provide or retain set-aside areas in farmland

Beneficial | Based on: 22 studies

☐ Leave overwinter stubbles

Likely to be beneficial | Based on: 14 studies

☐ Raise mowing height on grasslands to benefit birds

Unknown effectiveness (limited evidence) | Based on: 2 studies

☐ Plant nectar flower mixture/wildflower strips for birds

Likely to be beneficial | Based on: 7 studies

☐ Use mowing techniques to reduce chick mortality

Likely to be beneficial | Based on: 3 studies

Haasteita: alueelliset tietoaукот



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Actions

Can't find what you're looking for? [You can also search Individual Studies.](#)
Not sure what Actions are? [Read a brief description.](#)

Refine results

Category

☒ Bird Conservation (36)

Keywords

skylark

Habitat

- ☐ Artificial Habitats
☐ Grassland
☐ Wetlands

[More](#)

Threat

- ☐ Agriculture & aquaculture
☐ Natural system modifications

36 actions found

- ☐ Create skylark plots for bird conservation
Likely to be beneficial | Based on: 7 studies
- ☐ Provide or retain set-aside areas in farmland
Beneficial | Based on: 22 studies
- ☐ Leave overwinter stubbles
Likely to be beneficial | Based on: 14 studies
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- ☐ Plant nectar flower mixture/wildflower strips for birds
Likely to be beneficial | Based on: 7 studies
- ☐ Use mowing techniques to reduce chick mortality
Likely to be beneficial | Based on: 3 studies

Action: Provide or retain set-aside areas in farmland

Key messages [Read our guidance on Key messages before continuing](#)

- [Three replicated studies](#) and a review of five studies from Europe and North America examining species richness or diversity found that more species were found on set-aside than on crops. [One](#) found fewer species on set-aside than other agricultural habitats.
- All 21 studies, including a systematic review, 12 replicated experiments and two reviews, from Europe and North America that investigated population trends or habitat associations found that some species were found at higher densities or used set-aside more than other habitats, or were found on [set-aside](#). [Four studies](#) (three replicated) from the UK found that some species were found at lower densities on set-aside compared to other habitats.
- [Three](#) of four replicated studies from the UK found that waders and Eurasian skylarks had higher productivities on set-aside, compared to other habitats. [One study](#) found that skylarks nesting on set-aside had lower productivity compared to those on cereal crops, and similar productivities to those on other crops.
- [One replicated paired study](#) from the UK found that rotational set-aside was used more than non-rotational set-aside, [a replicated paired study](#) found no differences between rotational and non-rotational set-aside. A [review](#) from Europe and North America found that naturally regenerated set-aside held more birds and more species than sown set-aside.

Background information and definitions

Allocation of some farmland to 'set-aside' (fields taken out of production) was compulsory under European agricultural policy from 1992 until 2008. Originally intended as a method of reducing production, set-aside has also been promoted as a way of protecting on-field biodiversity. Set-aside fields can be sown with fallow crops or left to naturally regenerate. Set-aside can be rotational (in a different place every year) or long term (retained for 5–20 years).

A 2008 literature review of the Environmental Stewardship programme, particularly Entry Level Stewardship (ELS) in the UK (Vickery *et al.* 2008) found that the population trends of all Farmland Bird Index species were positively correlated with the availability of set-aside in that year and that Entry Level Stewardship may not be able to effectively replace set-aside.

Overall Effectiveness Category:

Beneficial

Effectiveness: 70%

Certainty: 75%

Harms: 0%

Where has this evidence come from?

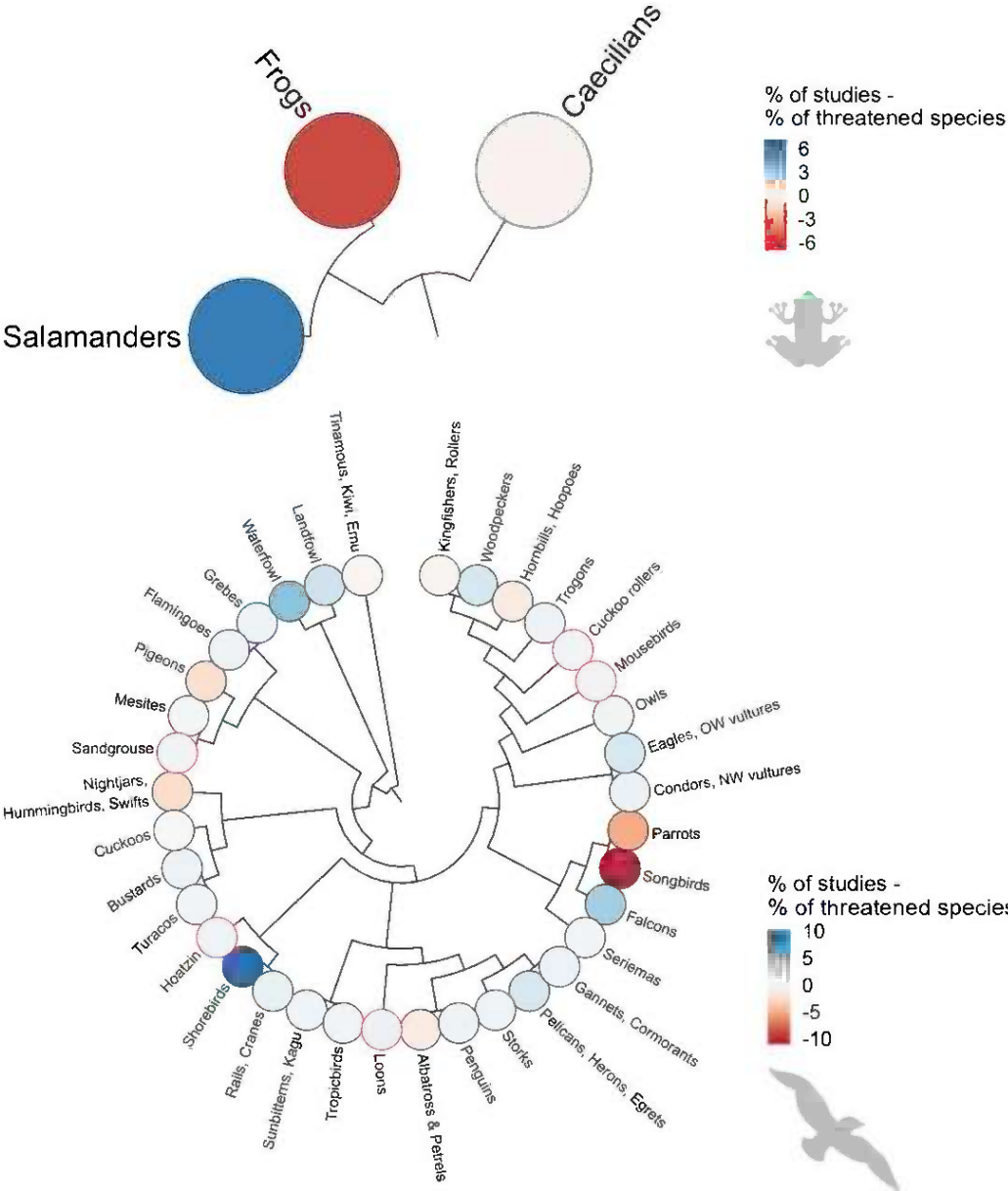
Bird Conservation
[View all](#)

Click [here](#) to see the list of journals searched for this synopsis, and [here](#) to see all the journals searched for all synopses.

Source countries



Haasteita: taksonomiset tietoaукот



Haasteita: taksonomiset tietouknot



Eungella Torrent Frog (*Taudactylus eungellensis*)

Actions

Can't find what you're looking for? [You can also search Individual Studies.](#)

Not sure what Actions are? [Read a brief description.](#)

Refine results

Category

Keywords

Taudactylus eungellensis

Habitat

Threat

Action type

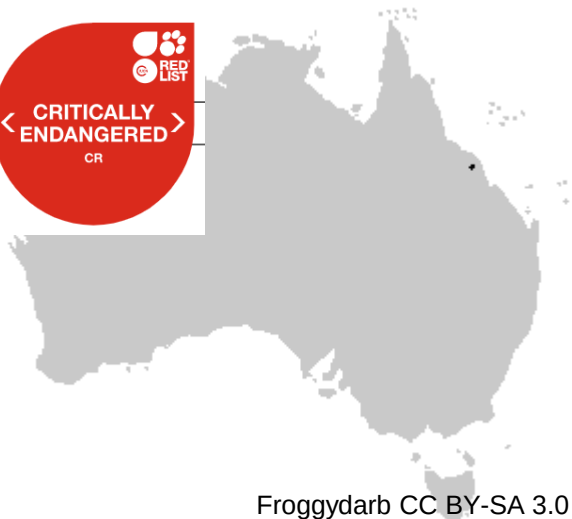
0 actions found

No action results

Sorry, your search didn't return any action pages. Please consider the following tips:

- Start with broad search terms, refining your search using the panel on the left
- If you're looking for evidence about a particular species, try searching at the genus or family level
- Check your spelling
- You can also search [Individual Studies.](#)
- Bear in mind that the Conservation Evidence project is a **work in progress**. We have actively collected evidence on a range of specific topics, as shown on the [Synopsis page](#). Beyond these subjects our coverage may be less thorough.

Results per page 25 ▼

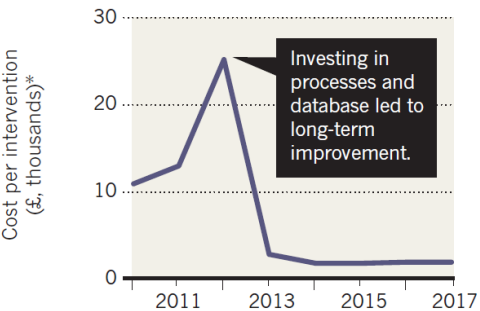


Haasteiden voittaminen tiedon synteesissä

COST-EFFECTIVE

Manually searching journals to find studies on actions designed to conserve species is costly at first. But as the searches accumulate, subsequent evidence syntheses require fewer resources.

Spending per intervention



New journals searched and conservation actions accessed

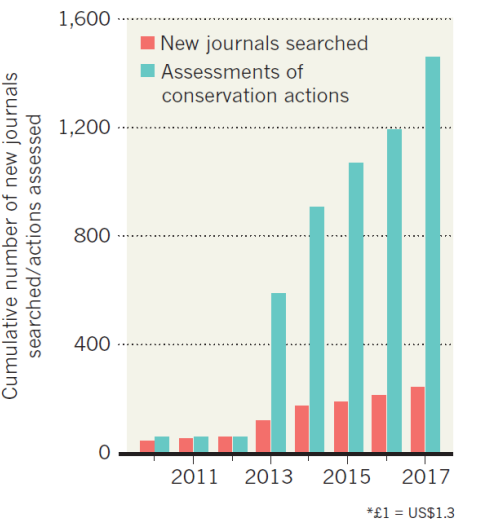


Table 1 | Emerging methods for rigorous and efficient research synthesis

Stage	Problem	Description	Solution
Planning	Planning workflow	Large numbers of software tools are available, but their relative strengths and weaknesses are unclear	Online databases of relevant tools ¹⁵
	Data collection	Sources of 'grey literature' such as organizational websites often lack convenient download functions	Web scraping ²⁷
Searching	Search record extraction	Downloading information from academic databases is slow and labour-intensive	No user-based solution: provider-dependent
	Incomplete search results	Downloading information from academic databases is slow and labour-intensive	Semantic analysis of key texts to locate additional search terms (synonyms)
	Duplicates	Same content repeated many times in the dataset because of multiple databases searched	Duplicate detection algorithms ²⁸
	Classification	Need for overview of broad trends to ensure only relevant topics are included	Simple machine-learning approaches such as topic modelling ¹¹
Screening	Inclusion of irrelevant material	Non-target subjects included in search results	Dynamic classification using machine learning ²¹
	Locating full text articles	Download of full-text documents often requires manual searching and downloading	Built in to some software platforms ²⁹ . Limited by copyright and access issues
	Data extraction	Information located in a combination of text, tables and figures, requiring manual checking	Automated image and natural language processing ^{30,31}
	Meta-analysis	Appropriate statistical models, methods and workflows can be complex, particularly for new users	Many tools available ^{29,32}
Synthesis	Data visualization	Presenting complex data for broad audiences is difficult	Open source/access to data. Interactive diagrams, such as evidence atlases, heat maps and visualizations ⁸

Tarve kriittiselle arvioinnille

- Kaikki tutkimukset eivät ole laadultaan samanarvoisia
- Osa tutkimuksista on laadultaan parempia kuin toiset
- Sisäinen laatu (tutkimuksen toteutus) and ulkoinen laatu (tulosten yleistettävyyys)
- Kaikessa korkealaatuisessa tiedon synteesissä tulisi arvioida mukana olevien tutkimusten laatu JA ottaa huomioon laadun vaihtelu synteesissä
 - Esimerkiksi, keskittymällä korkeamman laadun tutkimuksiin
 - Sisällyttämällä vain korkean laadun tutkimukset yksityiskohtaiseen synteesiin (esim. meta-analyysiin)
 - Sisällyttämällä laadun arviointi muuttujana synteesiin.

Tiedon synteesin haasteiden voittaminen

Conservation Evidence

Providing evidence to improve practice



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The journal, *Conservation Evidence*

Our online journal publishes research, monitoring results and case studies on the effects of conservation interventions. All papers include some monitoring of the effects of the intervention and are written by, or in partnership with, those who did the conservation work. It includes interventions such as habitat creation, habitat restoration, translocations, reintroductions, invasive species control, and education or integrated conservation development programmes, from anywhere around the world.

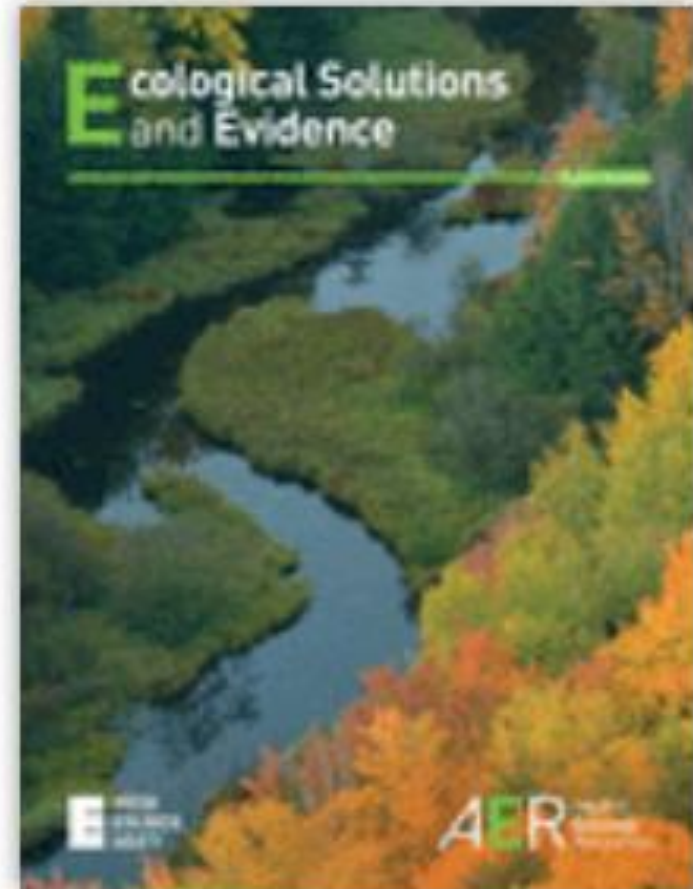
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Tiivistelmä

Luonnonsuojelua koskeva tieteellinen tieto on kertynyt nopeasti ympäri maailmaa, mutta tutkimuksen ja käytännön toteutuksen rajapintaa on vahvistettava

Näyttöön perustuvan luonnonsuojelun tavoitteena on puuttua tähän:

- Tiedon synteesi ja kriittinen arviointi (systemaattiset katsaukset, tiivistelmät)
- Näytön esittäminen helposti ymmärrettävällä ja saatavilla olevalla tavalla (tiivistelmät ja päätöksenteon tukivälineet)
- Näyttöön perustuva päätöksenteko auttaa välttämään vääristymiä sekä lisää avoimuutta ja vaikuttavuutta.

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Tiedonlähteitä

- Conservation Evidence www.conservationevidence.com
- Collaboration of Environmental Evidence www.environmentalevidence.org/
- Campbell Collaboration <https://campbellcollaboration.org/>
- Biodiversity Knowledge Network www.vliz.be/projects/biodiversityknowledge/
- Opas päätöksentekoon vaikuttamiseen – Science to Action
 - <http://seaknowledgebank.net/e-library/science-action-guidebook-scientists-guide-influencing-decision-making-decision-makers>