Table1

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## Warning: package 'tidyverse' was built under R version 3.6.1

## -- Attaching packages ------------------------------------------------------------------------------------------------------------------------------------------------------------------------ tidyverse 1.2.1 --

## v ggplot2 3.2.0 v purrr 0.3.3   
## v tibble 2.1.3 v dplyr 0.8.3   
## v tidyr 1.0.0.9000 v stringr 1.4.0   
## v readr 1.3.1 v forcats 0.4.0

## Warning: package 'purrr' was built under R version 3.6.1

## Warning: package 'dplyr' was built under R version 3.6.1

## -- Conflicts --------------------------------------------------------------------------------------------------------------------------------------------------------------------------- tidyverse\_conflicts() --  
## x dplyr::filter() masks stats::filter()  
## x dplyr::lag() masks stats::lag()

##   
## Attaching package: 'kableExtra'

## The following object is masked from 'package:dplyr':  
##   
## group\_rows

Research.Stage

1 Questions relevant to stakeholders 2 Questions relevant to stakeholders 3 Appropriate design and methods 4 Appropriate design and methods 5 Appropriate design and methods 6 Appropriate design and methods 7 Unbiased reporting 8 Unbiased reporting 9 Unbiased reporting 10 Unbiased reporting 11 Unbiased reporting 12 Accessible full publication 13 Evidence synthesis Examples.of.potential.for.research.waste 1 Irrelevant questions asked 2 Previous knowledge not properly taken into account 3 Study poorly designed, under-powered (or over-powered. etc.) 4 Using inappropriate statistical tools (including overfitting etc.) 5 Questionable research practices3 lead to poor quality research 6 Questionable research practices3 lead to poor quality research 7 Lack of open data 8 Hypothesising after the results are known 9 p-hacking 10 File-drawer syndrome (only some studies are published) 11 Incomplete reporting, making evidence synthesis difficult or impossible 12 Publications not available to practitioners and decision makers 13 Research not designed or presented in the context of the existing knowledge Where.ecology.and.conservation.can.reduce.waste 1 Co-development of research questions with stakeholders and using appropriate methodology such as Delphi exercises to avoid issues such as group think or not including the right group of experts or stakeholders 2 Make use of evidence synthesis methods (e.g. cumulative meta-analysis, systematic mapping, systematic reviews, meta-analysis) to identify questions that are not satisfactorily answered 3 Use simulations or power-analysis prior to undertaking data collection. Predefine effect size of interest with stakeholders (i.e. do not rely on rules of thumb for “statistical significance”) 4 Better training of early-career researchers in methods. Open code and data to ensure reproducibility of methods 5 Open science (open methods and data, reproducible methods, sharing code, etc.) 6 Better training of early-career researchers in methods of open science and evidence synthesis 7 Open science (open methods and data, reproducible methods, sharing code, etc.) 8 Pre-registration of hypotheses 9 Open science (open methods and data, reproducible methods, sharing code, etc.) 10 Pre-registration of hypotheses and methods. Open publishing (including preprints) 11 Increasing knowledge of researchers and peer reviewers on what is essential to report, and changing journal guidelines where necessary to ensure all relevant information is reported 12 Open access publishing, including making resources available to researchers to be able to publish open access 13 Using systematic reviews, systematic maps, meta-analysis, etc. to shape research priorities. Where good quality evidence is available these should be synthesised providing evidence to relevant stakeholders. Research gaps should be the focus of primary studies.