METADATA
General information (ID, Site Name, Coordinates)

Coder ID
[TEXT]

Coder's name

Study Identifier
[INT]

Unique identifier

The identifier is composed of a 5-digit code: the first two letters refer to the country (EC, PE, BO, VE, etc), the three numbers are consecutive numbering of the studies.

When the study contains different type of information, then the study is coded twice, with a different ID.

Type of study
[TEXT], Lookup table

peer-reviewed article (synthesis)	Review of original studies
peer-reviewed article (original study)	
Book	
thesis	
report	
Other	

Site name
[TEXT]

Site name as given in publication. If the publication mentions various sites, each site is included as a separate observation.

Coordinates of catchment outlet, or study site
[FLOAT]

Longitude, dd

Latitude, dd

Altitude (m a.s.l.)

Each study will be georeferenced in longitude and latitude (decimal degrees) in the WGS84 Geodetic System. If coordinates of the site are given in another coordinate system, a transformation has been applied using the online convertor available on: https://epsg.io/

If a range of coordinates is given for a given site, we used the centroid of the study area. If a given study resumes information from different sites, each site is included as a separate observation.

Environmental characteristics (bioclimate, land surface form, lithology, ecosystem)

Bioclimates

[TEXT], Look-up table

Source : The Nature Conservancy, 2005. South America General Bioclimate. https://rmgsc.cr.usgs.gov/ecosystems/dataviewer.shtml (last accessed: 30-06-2021)

"South America General Bioclimate Zone dataset was produced by mosaicing the Eastern South America Division (ESA) Bioclimate Zone dataset and the Southern South America (SSA) Bioclimate Zone dataset".

Surface lithology

[TEXT], Look-up table

Source : The Nature Conservancy, 2005. South America General Geology   . https://rmgsc.cr.usgs.gov/ecosystems/dataviewer.shtml (last accessed: 30-06-2021)

"South America General Geology dataset was produced by mosaicing the Eastern South America Division (ESA) General Geology dataset and the Southern South America (SSA) General Geology dataset. These two general geology datasets were modeled from detailed South America geology data."

Ecosystems

[TEXT], Look-up table

Source : The Nature Conservancy, 2008. South America Ecosystems. 3rd version. https://rmgsc.cr.usgs.gov/ecosystems/dataviewer.shtml (last accessed: 30-06-2021)

"The map of the distribution of Latin America and Caribbean (LAC) ecological systems includes modeled ecological systems that occur within South America. Five input data layers - elevation (SRTM, 2000), landform (SRTM, 2000 and WWF-Hydrosheds, 2005), geology (TNC and GDS, 2005), landcover (GLC, 2000) and bioclimate (WorldClim, 2004 and TNC, 2005) - were combined to produce a map of unique ecological system footprint gridcodes. These gridcodes were then evaluated and attributed to one of NatureServe's Latin America and Caribbean Ecological Systems."

Land surface forms

[TEXT], Look-up table

Source : The Nature Conservancy, 2005. South America General Landforms.
https://rmgsc.cr.usgs.gov/ecosystems/dataviewer.shtml (last accessed: 30-06-2021)

"South America General Landforms dataset were produced by mosaicing the Eastern South America Division General Landforms dataset and the Southern South America General Landforms dataset. These two landform datasets were modeled from SRTM DEM data, WWF modeled hydrology data, global lakes and wetlands data, and detailed geology data".

Experimental design

[TEXT], Lookup table

Based on the manual by Nichols et al. (2011), the study type is identified according to the following table. We added the option to include studies that lack a specific sampling design (type: "other")

Other Descriptive studies	No specific sampling design
After Impact	Comparison of variable(s) from impact locations with a standard from literature or other but not with control/reference location/s, and with no data from impacted site (before/after)
Control/Ref vs. Impact	Any case where reference/control locations are being compared to impact location w/o before-impact data for the impact locations. May include cases where locations are compared to output from models based on reference/control locations.
Multiple Control/Ref vs. Impact	Multiple Control/Reference locations and 1 or many impact locations. Or, multiple impact locations and 1 or many control/reference locations. No Before/After.
Before After with no reference/control data	Any case where variable(s) are compared before and after the onset of changes with no reference/control
Gradient Response	Any case with investigation of an association between causal agent and response variable along a causal-agent gradient. Data may include locations with different degree of disturbance. Gradients may also occur through time.
Before After Control/Ref and Impact	Before After Control Impact or Before After Reference Impact, with 1 control/reference location, 1 impact location. Compares changes at two locations (control/reference and Impact location) before and after the impact
Before After Control/Ref and Impact and Paired study	Before After Control Impact or Before After Reference Impact, with 1 control/reference location, 1 impact location. Sampled through time at the same times, I.e. paired measurements from control and impact locations. Sampling through time during long intervals during the before/after periods is used to estimate the temporal variation in the differences between control and impact locations. The temporal variation is used to assess the average difference before and after the impact starts. The time intervals are large enough to prevent autocorrelation, and are viewed as a random sample of possible values in each time period.
Multiple Control/Ref locations or Impact locations	Multiple Control/Reference locations and 1 or many impact locations. Or, multiple impact locations and 1 or many control/reference locations. Can include replication in time

Modeling to get the desired output

[TEXT], Lookup table

Indication if the case is based on modelling, and the type of model used (statistical, process based or mixed)

no	No modelling approach
Statistical model, no validation	Statistical model that is not validated with independent data or bootstrapping techniques
Statistical model with validation	Statistical model that is validated
Process based model no validation	Process based model validated with field observations
Process based model with validation	Process based model that is not validated
Mixed model approach no validation	Mixed model approach that is not validated
Mixel model approach with validation	Mixed model approach that is fully validated with field observations

Scale

[TEXT], Lookup table

Plot scale	Typically between $1m^2 - 10\,000m^2$
Catchment	Between 1ha and $1000km^2$
Watershed	Larger than $1000km^2$
Landscape	No catchment approach, regional analysis

Environmental services and processes (following classification)

[TEXT], Look-up table

The database contains information on six indicators of soil erosion for different landscape elements or types of intervention.

LANDSCAPE ELEMENTS

Natural vegetation
Forests and Native grasslands

Traditional Agriculture
Cropland (CROP)   Rangeland (RANGE)

Bare land
(BARE)

TYPE OF INTERVENTION

Restoration and Protection (PRO)

Forestation (FOR)

Soil and Water Conservation Measures (SWC)

None

INDICATORS

On-site Soil Erosion
Soil Loss Rate [$t.km^{-2}.yr^{-1}$] (Sloss)
Plot Runoff Coefficient [%] (RC)

Off-site Soil Erosion
Sediment yield [$t.km^{-2}.yr^{-1}$] (SSY)
Runoff Ratio [%] (RCC)

Soil quality (topsoil)
Soil Organic Carbon [%] (SOC)
Bulk Density [$g.cm^{-3}$] (BD)

The indicators for soil erosion and soil quality are:

- Sloss = soil loss rate (determined as soil loss in $t\ km^{-2}\ yr^{-1}$),

- RC = plot runoff coefficient (determined as event-based runoff coefficient from rainfall simulation experiments, in %),
- SSY = specific sediment yield (determined as the catchment-wide sediment yield per surface area, in abandoned cropland or degraded land with very low (< 10 %) vegetation cover.),
- RCC = catchment-wide runoff ratio (determined as the annual total runoff ratio of the catchment, in %).
- SOC (total soil organic carbon of the uppermost soil horizon, between 5 and 30 cm, in %)
- BD (dry bulk density of the topsoil horizon, between 5 and 30 cm, in g.cm^{-3}).

The indicators for three natural infrastructure interventions (PRO, FOR and SWC) are compared with untreated areas under traditional agriculture, either cropland (CROP) or rangeland (RANGE), and bare land (BARE). Bare land corresponds to abandoned cropland or degraded land with very low (< 10 %) vegetation cover.

Time resolution

[TEXT], Look-up table

Frequency at which measures are taken

< 1hour	
Hourly	
Daily	
Weekly	
monthly	
Yearly	
Multi-year	
> 100 yrs	

Reference

Abbreviation of bibliographic source

[TEXT]

Author, Year

The full reference of all case studies is given in a separate text file.

References

Nichols, S., Webb, A., Norris, R., and Stewardson, M.: Eco Evidence analysis methods manual: a systematic approach to evaluate causality in environmental science, eWater Cooperative Research Centre, Canberra, 2011.