Table S2. Categories and questions used to analyze the selected publications

Categories/questions	Description
A WIDE RANGE OF RS DATA FOR VARIOUS ECOLOGICAL CONSIDERATIONS	
A. ECOLOGICAL CONSIDERATIONS	
A1. What type of area of occupancy was classified?	
Potential area	Potential distribution range of vegetation
Actual area	Effective distribution range of vegetation
A2. Which natural vegetation class was classifier?	
Land cover	Vegetation description according to physiognomy (e.g. Shrubs, forests...)
Plant community	Assemblage of plant species (e.g. alliance ...)
Plant species	Particular plant species (e.g. threatened or invasive plant species)
A3. How many vegetation classes have been considered?	
One-class	Only one class was classified
Multi-class	Several classes were classified separately and then compared
A4. What is the extent of the site to be classified?	
Local	Area < 1,000 km².
Regional	Area from 1,000 to 100,000 km².
National	Site covering an entirely country
Continental	Site covering an entire continent
Global	Site covering all Earth' terrestrial areas
A5. Is there a temporal monitoring?	
No	Classification is applied to a single period.
Yes	Classification is applied over several years to highlight vegetation dynamics.
B. REMOTE SENSING DATA AND VARIABLES	
B1. What spectral type of RS sensor was used?	
Optical Multispectral	Passive sensor with 3-20 bands in the visible, infrared and thermal spectrum
Optical Hyperspectral	Passive sensor with > 100 bands in the visible, infrared and thermal spectrum
SAR	Active sensor with one band in the short-wave spectra
LiDAR	Dual-pulse active infrared band sensor
B2. What type of platform was used?	
Unmanned airborne	Data acquired by unmanned airborne flying < 200 m asl
Manned airborne	Data acquired by manned airborne flying between 200 and 1000 m asl
Satellite	Data acquired by unmanned spaceborne
B3. What is the spatial resolution of the RS data used?	
Very high	Pixel size < 5 m
High	Pixel size between 6 and 30 m
Medium	Pixel size between 31 and 250 m
Low	Pixel size between 251 and 2,000 m
B4. How many acquisitions were used?	
Single	One acquisition was used to capture the ecosystem conditions at a given time.

Multi-temporal	Many acquisitions were used to capture the ecosystem dynamics.
Annual time-series	A time series was used to characterize ecosystem dynamics.
B5. What RS-based variables were used?	
Climate	Land surface temperature and precipitations
Soil	Soil physico-chemical properties (e.g. pH, organic matter content...)
Topography	Digital elevation model from the canopy (e.g. SRTM…)
Vegetation	Vegetation biophysical properties (e.g. leaf area index, spectral bands...)
Categorical	Soil types, LULC (e.g. CORINE Land cover)
Perturbation	(fire intensity, snow duration…)
B6. What types of non-RS variables were added?	
None	Classification was done using RS-based variables only.
Bioclimatic	Variables extrapolated from weather station networks (e.g. Worldclim)
Soil/geological	Variables extrapolated from *in situ* soil and geological surveys
Topographical	Variables extrapolated from *in situ* topographical surveys (e.g. national DTM)
C. REFERENCE DATA	
C1. What types of reference data were used for classification fitting and validation?	
Vegetation database	Field vegetation plots extracted from existing databases (e.g. Museum inventories...)
Field collection	Field vegetation plots collected during the experiment
Image collection	Data collected on the desk by analysis of very high spatial resolution imagery (e.g. UAV, Google Earth…)
C2. How many reference data were used per vegetation unit?	
Very sparse	< 10
Sparse	10 – 50
Moderate	50 – 100
Large	100 – 1,000
Very large	> 1,000
RS AND OCC: TOOLS AND SETTINGS	
D. TOOLS AND COMPUTER RESOURCES	
D1. What tools were used for the classification?	
Open-source softwares	Free software and packages were used (e.g. R, Python, Whitebox, SAGA...)
Commercial softwares	Paid software was used (e.g. MATLAB, ENVI, SPSS...)
D2. What computer resources were used for processing?	
Local computing	Processing was run on PCs locally based within the labs.
Cloud computing	Processing was run from distant servers (e.g. GEE, ESA...).
E. VARIABLES SELECTION AND COLLINEARITY	
E1. How was the initial variable dataset chosen?	
Expert	Pre-selection based on expert knowledge of the site specificity.
Literature	Pre-selection based on ecological knowledge.
Data mining	No *a priori* pre-selection, all possible variables were used.
E2. How were the correlated variables addressed?	

Classifier-based	Let the classifier select the most informative variables
Expert-based	Selection based on ecological knowledge of the vegetation class
Statistical-based	Selection based on statistical indices (e.g. correlation, VIF, AIC, permutation...)
Reduction	Synthetic variables were produced (e.g. MNF, PCA...)
F. CLASSIFIER SELECTION	
F1. Which type of classifier was used?	
Machine learning	RF / BSVM / Maxent / GLM / GAM
Ensemble classifier	Combination of multiple classifiers
Deep learning	CNN
Genetic learning	Evolutionary algorithm
F2. Which type of classifier provides the best results?	
Non applicable	Only one type of classifier was evaluated
Equivalent	No significant differences between classifiers were observed
Classifier name	Name of the best classifier
G. BACKGROUND POINTS SELECTION	
G1. How many background points were used?	
Small	< 10,000 points
Default	10,000 points
Large	> 10,000 points
Unspecified	
Non applicable	Absence points were used
G2. Has spatial sampling bias been considered?	
No	The background points were selected randomly across the landscape.
Yes	Background points were selected close to occurrence points.
Non applicable	Absence points were used
G3. Have the background points been selected according to land use/land cover?	
All landscape	The background points were selected regardless of LULC.
Distribution area	Convex hull covering the full extent of the known occurrence's distribution
Natural areas	Background points have been selected only in natural areas
Artificial areas	Background points have been selected only in artificial areas.
Unspecified	
Non applicable	Absence points were used
G4. Have background points been selected in close proximity of occurrence points?	
Yes	Some background points may overlap with occurrence points.
No	A constraint of minimum distance to occurrence points was applied.
Unspecified	
Non applicable	Absence points were used
H. CLASSIFIER TUNING	
H1. What type of tuning is desired?	
None	No tuning, classifier default settings were used
Best performance	The best classification performance is targeted (e.g. AUC, F-score...)
Best transferability	The lowest classification over-fitting is targeted (e.g. AIC...)

Unspecified	
I. THRESHOLDING	
I1. At what stage(s) does thresholding occur?	
Never	The classifier has been tuned and validated using threshold-free metrics (e.g. AUC), and the maps were expressed as continuous occurrence probability.
Tuning/validation	The classifier has been tuned and validated using thresholding-dependent metrics (e.g. F-score, Kappa ...).
Categorical mapping	A threshold has been applied to convert the continuous map into a categorical map (e.g. presence/absence, low/medium/high...).
I2. If applicable, on what criterion was the threshold based?	
Default	A default threshold value has been chosen (e.g. 0 for SVM, 0.5 for Maxent…)
Statistical	Threshold set on a trade-off between sensitivity and specificity (e.g. TSS, Max SS...)
Expert-based	Threshold set by experts according to the output probability map.
Unspecified	
J. CLASSIFICATION ACCURACY ASSESSMENT	
J1. Was spatial autocorrelation considered during the accuracy assessment of the classification?	
No	Training and validation samples can be spatially close.
Yes	The validation samples were selected with a minimum distance to the training samples.
J2. Is classification validation performed on independent plots?	
No	The same plots were used for tuning and validating the classifier (e.g. cross-validation...).
Yes	Independent plots were used to validate the classification accuracy.
J3. On which criterion(s) was based the classification accuracy assessment?	
Best performance	Minimize under-detection and over-detection (e.g. F1-score, AUC, Kappa...)
Spatial uncertainty	The categorical maps of each classification are overlaid to point out inconsistency areas.
Best transferability	Minimize over-fitting (e.g. AUC train – AUC test, AIC...)
Expert-based	Visual assessment of the output map
J4. What type of data was used to estimate over-detection?	
Pseudo-absence	Background points are used as pseudo-absence data.
True absence	True-absence points are used (e.g. land use map, additional field plots...)
J5. If applicable, how are the specific classifiers for each vegetation unit combined together?	
Independent	Classifications for each vegetation unit are compared independently
Higher probability	Assignment for each pixel of the class with the highest probability
Categorical map addition	Each pixel can be characterized by multiple vegetation units (e.g. species richness).