Supplementary Materials

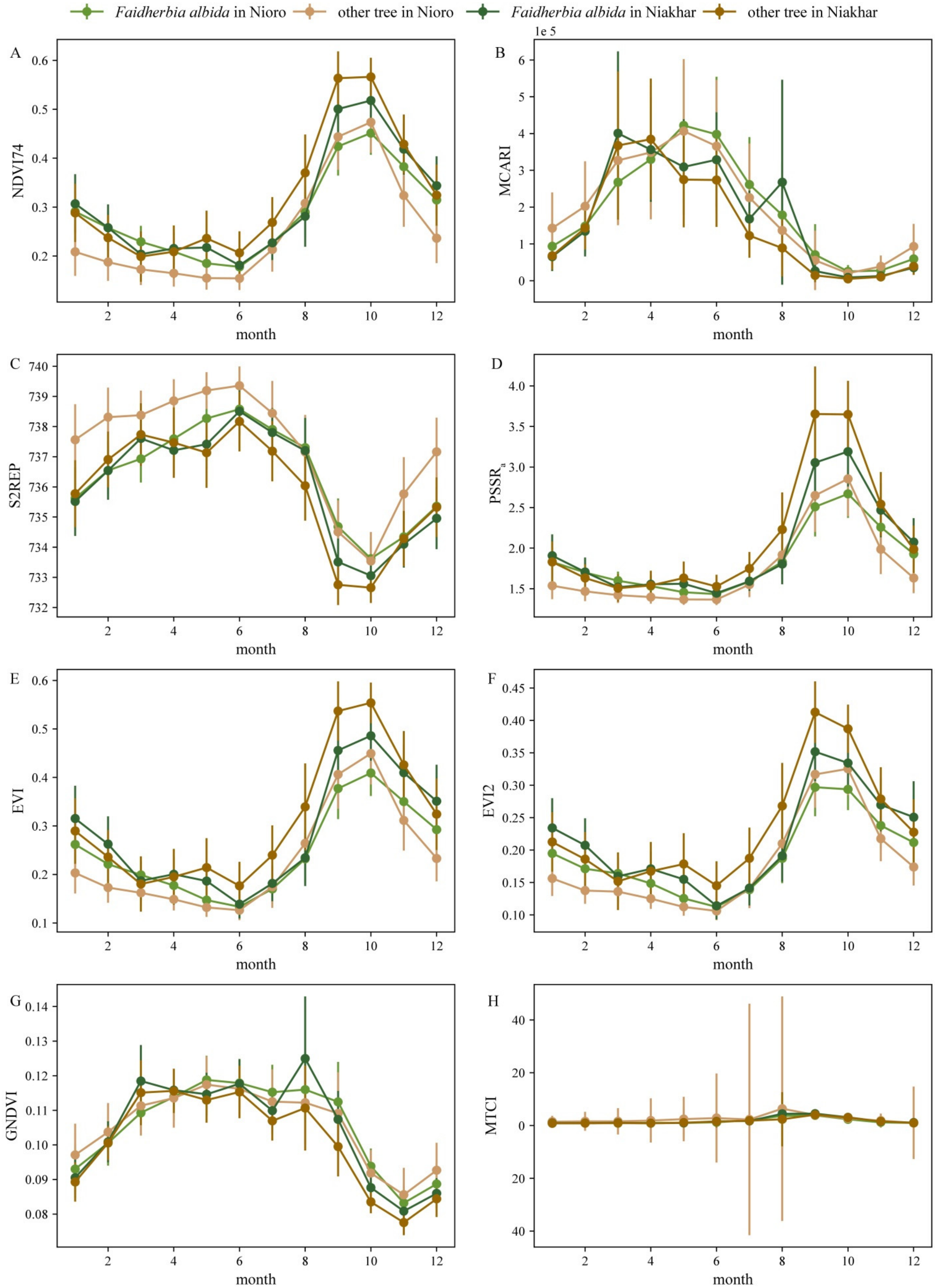

Figure S1. Averaged monthly (**A**) NDVI74, (**B**) MCARI, (**C**)S2REP, (**D**) PSSRa, (**E**) EVI, (**F**) EVI2, (**G**) GNDVI, (**H**) MTCI values for sample pixels of *Faidherbia albida* and other species in the regions of Nioro and Niakhar. Vertical lines represent the standard deviation of the sample population. Overall, 1418 pixels were sampled and averaged over the study period, including 57 *Faidherbia albida* pixels and 112 pixels with other tree species in the Nioro region, and 459 *Faidherbia albida* pixels and 790 pixels with other species in the Niakhar region.

Table S1. Vegetation indices used in the study. Their formulation and the related spectral bands (band numbering is referring to the Sentinel-2 sensor system).

Vegetable index	Formulation	Bands
NDVI	(NIR-R)/(NIR+R)	(B8-B4)/(B8+B4)
DNVI74	(NIR-R)/(NIR+R)	(B7-B4)/(B7+B4)
MCARI	[(RE-R)-0.2(RE-G)]*(RE-R)	[(B5-B4)-0.2(B5-B3)]*(B8+B4)
PSSRa	NIR/R	B7/B4
S2REP	705+35*((((NIR+R)/2)-RE1)/(RE2-RE1))	705+35*((((B7+B4)/2)-B5)/(B6-B5))
EVI	2.5 * (NIR - R)/((NIR + 6*R - 7.5*B)+1)	2.5* (B8- B4)/((B8 + 6.0* B4-7.5* B2) + 1)
EVI2	2.5 * (NIR -R) / ((NIR + R + 1)	2.4 * (B8 - B4) / (B8 + B4 + 1.0)
NDI54	(NIR-R)/(NIR+R)	(B5-B4)/(B5+B4)
GNDVI	(NIR-G)/(NIR+G)	(B7-B3)/(B7+B3)
MTCI	(NIR-RE)/(RE-R)	(B6-B5)/(B5-B4)

Table S2. Correlation coefficient of monthly vegetation index of *Faidherbia albida*.

Correlation coefficient	NDVI	NDVI74	MCARI	S2REP	$PSSR_a$	EVI	EVI2	NDI54	GNDVI	MTCI
NDVI	\	0.99	0.91	0.98	0.98	0.97	0.99	0.76	-0.66	0.43
NDVI74	0.99	\	-0.89	-0.95	0.99	0.98	0.99	0.69	-0.59	0.52
MCARI	-0.91	-0.89	\	0.93	-0.84	-0.83	0.87	-0.82	0.80	-0.29
S2REP	-0.98	0.95	0.93	\	0.93	-0.91	0.94	-0.88	0.79	0.24
$PSSR_a$	0.98	0.99	-0.84	-0.93	\	0.98	0.98	0.65	-0.54	0.53
EVI	0.97	0.98	-0.83	-0.91	0.98	\	0.99	0.60	-0.47	0.59
EVI2	0.99	0.99	-0.87	-0.94	0.98	0.99	\	0.67	-0.55	0.53
NDI54	0.76	0.69	-0.82	-0.88	0.65	0.60	0.67	\	-0.97	-0.23
GNDVI	-0.66	-0.60	0.81	0.79	-0.54	-0.47	-0.55	-0.97	\	0.29
MTCI	0.42	0.51	-0.29	-0.23	0.53	0.59	0.53	-0.23	0.29	\

Table S3. Correlation coefficient between vegetation index values of *Faidherbia albida* and other species.

	NDVI	NDVI74	MCARI	S2REP	$PSSR_a$	EVI	EVI2	NDI54	GNDVI	MTCI
Correlation coefficient	0.94	0.96	0.95	0.94	0.96	0.96	0.94	0.87	0.97	0.88

Table S4. Climatic, geomorphologic, and pedologic layers used for the Species Distribution Modelling[1].

Type	Variable Layer	Data Source	Resolution
Climatic	Moisture deficit of driest season	BiodiversityR	30 arc-seconds
	Precipitation of warmest quarter	WorldClim	30 arc-seconds
	Precipitation of coldest quarter	WorldClim	30 arc-seconds
	Precipitation of driest month	WorldClim	30 arc-seconds
	Precipitation seasonality	WorldClim	30 arc-seconds
	Mean diurnal range	WorldClim	30 arc-seconds
	PET wettest quarter	ENVIREM	30 arc-seconds
	PET coldest quarter	ENVIREM	30 arc-seconds
	PET driest quarter	ENVIREM	30 arc-seconds
Geomorphologic	Topographic wetness index	ENVIREM	30 arc-seconds
	Topographic roughness index	ENVIREM	30 arc-seconds
Pedologic	Clay content	SoilGrid250	250m
	Silt content	SoilGrid250	250m
	Bulk content	SoilGrid250	250m

Tables S5. Results from the 4-fold cross-validation using a test set of 40 features.

	iteration 1	iteration 2	iteration 3	iteration 4	average
precision	0.89	0.92	0.89	0.92	0.91
recall	0.88	0.87	0.86	0.8	0.85
F-measure	0.88	0.88	0.87	0.87	0.89

References

1. Kindt, Roeland. A climate change atlas for Africa. Presentation made during a workshop on the estimation of the potential of agroforestry to mitigate climate change in sub-Saharan Africa, organized by CIRAD, Montpellier, France. **2021**. 10.13140/RG.2.2.11028.83841.