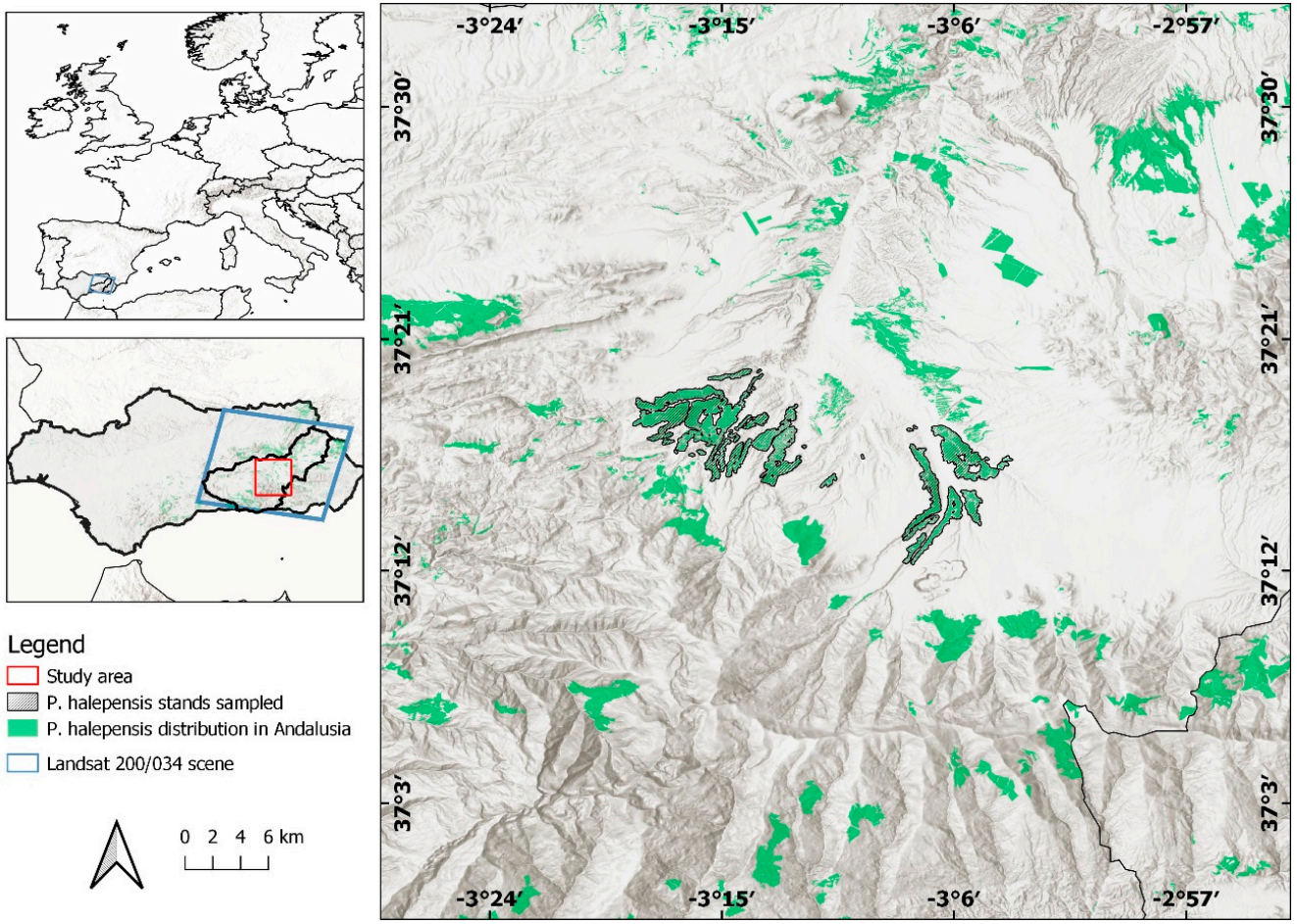

Figure S1.- *Pinus halepensis* Mill forests location in South-Eastern Spain and detail of the sampled stands in this work.

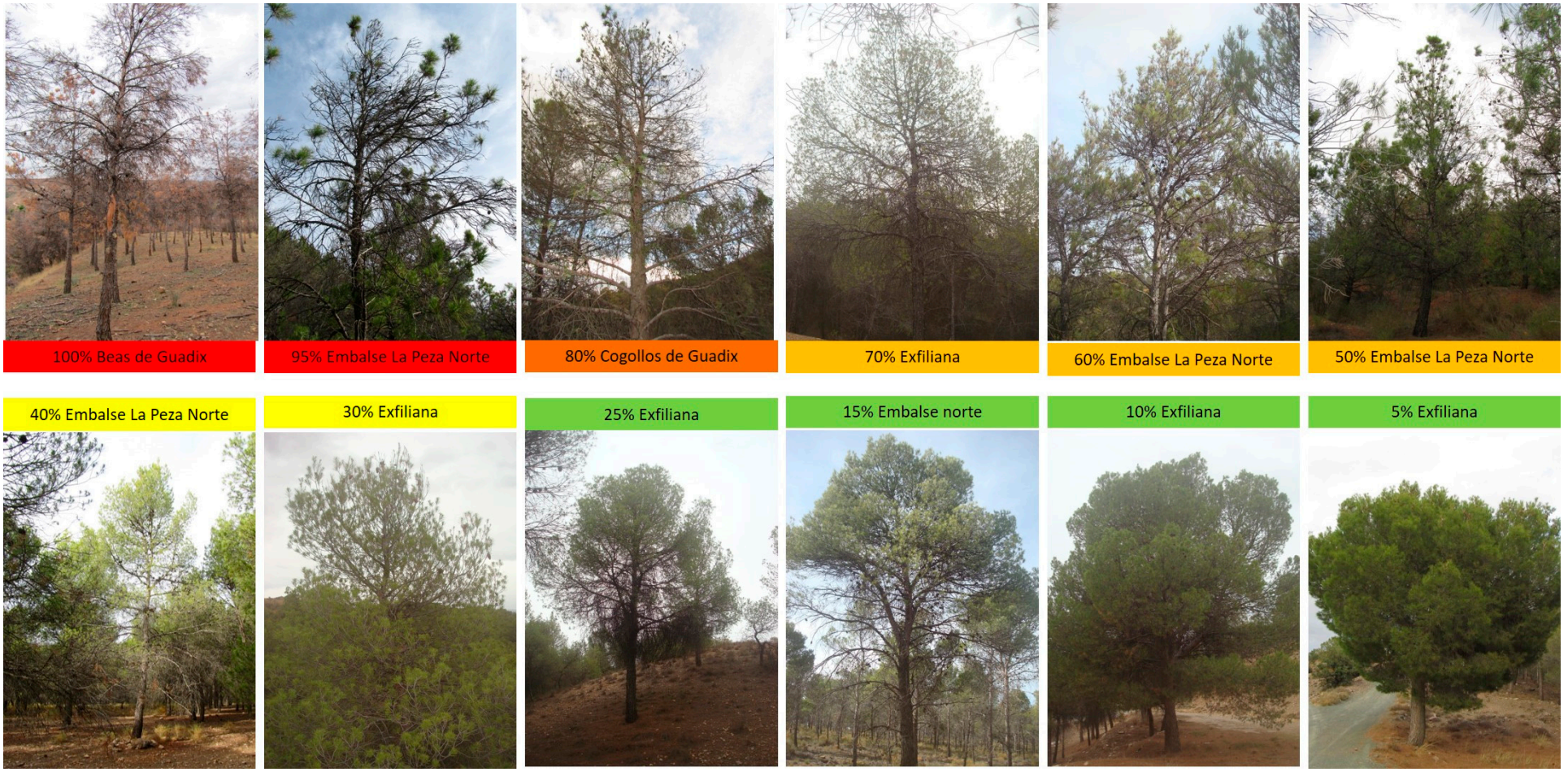

Figure S2.- Field defoliation percentage of *Pinus halepensis* Mill in South-Eastern Spain caused by *Candidatus* Phytoplasma pini'

Table S1: Forestry characteristics of each species from Third National Forest Inventory of Spain.

Species	Area (ha)	D(Pies/ha)	G (m^2/ha)	V(m^3/ha)	Dm(cm)	FCC(%)
Pinus halepensis	23076.8	117.15	2.42	8.02	19.09	46.45

Table S2. LandTrendr parameters used for the segmentation of the NBR Landsat time series.

Parameter	Value
maxSegments	6
spikeThreshold	0.9
vertexCountOvershoot	3
preventOneYearRecovery	TRUE
recoveryThreshold	0.25
pvalThreshold	0.05
bestModelProportion	0.75
minObservationsNeeded	6

Table S3.- Environmental data used to predict the defoliation of *Pinus halepensis* Mill in South-Eastern Spain caused by Candidatus Phytoplasma pini'

Variables	**COD**	**UNITS**
Climatic		
Annual precipitation	PRC	mm
Average reference evapotranspiration	ETO	mm
Average net primary production	ANPP	g C m^{-2} yr^{-1}
Annual sum of the positive differences between precipitation and reference evapotranspiration	SSUP	mm
Aridity index	IAR	-
Average mean temperature	T_MED	ºC
Average minimum temperature	T_MIN	ªC
Average maximum temperature	T_MAX	ºC
Average maximum temperature of the warmest months	TMC	ºC
Average minimum temperature of coldest months	TMF	ºC
Maximum temperature warmest month	TMAXC	ºC
Minimum temperature coldest month	TMINF	ºC
Average of days with a maximum temperature equal or above 35ºC	NDC	Days
Average of days with a minimum temperature equal or below 0ºC	NDF	Days
Compound topographic index	HIDRO_ICT	-
Topographic humidity index	HIDRO_ITH	-
Edaphic		
Average clay content	ARC	%
Average fine soil content	TF	%
Average organic matter in the soil profile	MO	%
Average organic matter surface horizon	MO_SUP	%
Average sand content	ARE	%
Average silt content	LIM	%
Cation exchange capacity	CIC	meq/100g
Nitrogen content	N_SUP	%
Percent base saturation	PBS	%
Soil pH	PH	-

Soil depth	PS	cm
Water retention capacity	CRAD	mm/m
Topographic		
Aspect	TP_EXPO	Degree
Elevation	TP_ELEV	m
East – west orientation	TP_ES_OE	Degree
North to south orientation	TP_SU_NO	Degree
Slope	TP_PEND	Degree
Radiation in spring	TP_RSD_P	Julian/m^2
Radiation in summer	TP_RSD_V	Julian/ m^2
Radiation in winter	TP_RSD_I	Julian/ m^2
Radiation in autumn	TP_RSD_A	Julian/ m^2
Annual Solar Incidence	S_Annual	Hours
Monthly Solar Incidence (January to December)	S_01-12	Hours
Seasonal Solar Incidence (Winter to Autumn)	S_win-aut	Hours