Supplementary materials

Modelling diameter distribution of *Tetraclinis articulata* in Tunisia using normal and Weibull distributions with parameters depending on stand variables

Sghaier[1,*] Tahar, Cañellas[2] Isabel, Calama[2] Rafael and Sánchez-González[2] Mariola

[1]Institut National de Recherches en Génie Rural, Eaux et Forêts (INRGREF) B.P. 10. Avenue Hédi Karray 2080, Ariana. Tunisia.

[2]INIA-CIFOR. Ctra A Coruña. km 7.5, 28040 Madrid. Spain

Corresponding author: Sghaier Tahar

e-mail: Sghaier.tahar@iresa.agrinet.tn

Tel : +216 71 230 039

Fax : +216 71 717 951

Tab. S1 - Regression equations retained for the parameter prediction using the stand variables (50 plots): R^2 : coefficient of determination ; *CV%* : residual coefficient of variation; ln : natural logarithm.

Distribution	*Method*	*Equations*	R^2	*CV%*
Weibull	*MLE*	$b = -12.0067 + 9.8794 \times \ln(d_g)$	0.991	1.6
		$c = 2.2609 - 0.0567 \times \frac{1}{\ln(\bar{d} / d_g)}$	0.913	5.5
	MOM	$b = -12.0517 + 9.8915 \times \ln(d_g)$	0.990	1.7
		$c = 2.1882 - 0.0676 \times \frac{1}{\ln(\bar{d} / d_g)}$	0.962	4
Normal		$\bar{d} = \bar{d}$	-	-
		$\hat{\sigma} = 7.824 \times 10^{-2} d_g^{1.525}$	0.780	13.8

Tab. S2 - Parameter estimations and statistics used for modelling the mean diameter ($\overline{d}$) of the stand.

Model	*Param.*	*Estimation*	*Standard Error*	*Bias*	*RMSE*	R^2
$\overline{d} = d_g - e^{b_0+b_1 H_m+b_2 A}$	b_0	-1.8143	0.2502	0.0009	0.0966	0.996
	b_1	0.2263	0.0385			
	b_2	-0.0102	0.0046			

Fig. S1 - Observed versus estimated values for the parameter estimation and parameter prediction approaches according to each test function for the plot number 36 with a *symmetrical distribution* of tree diameters.

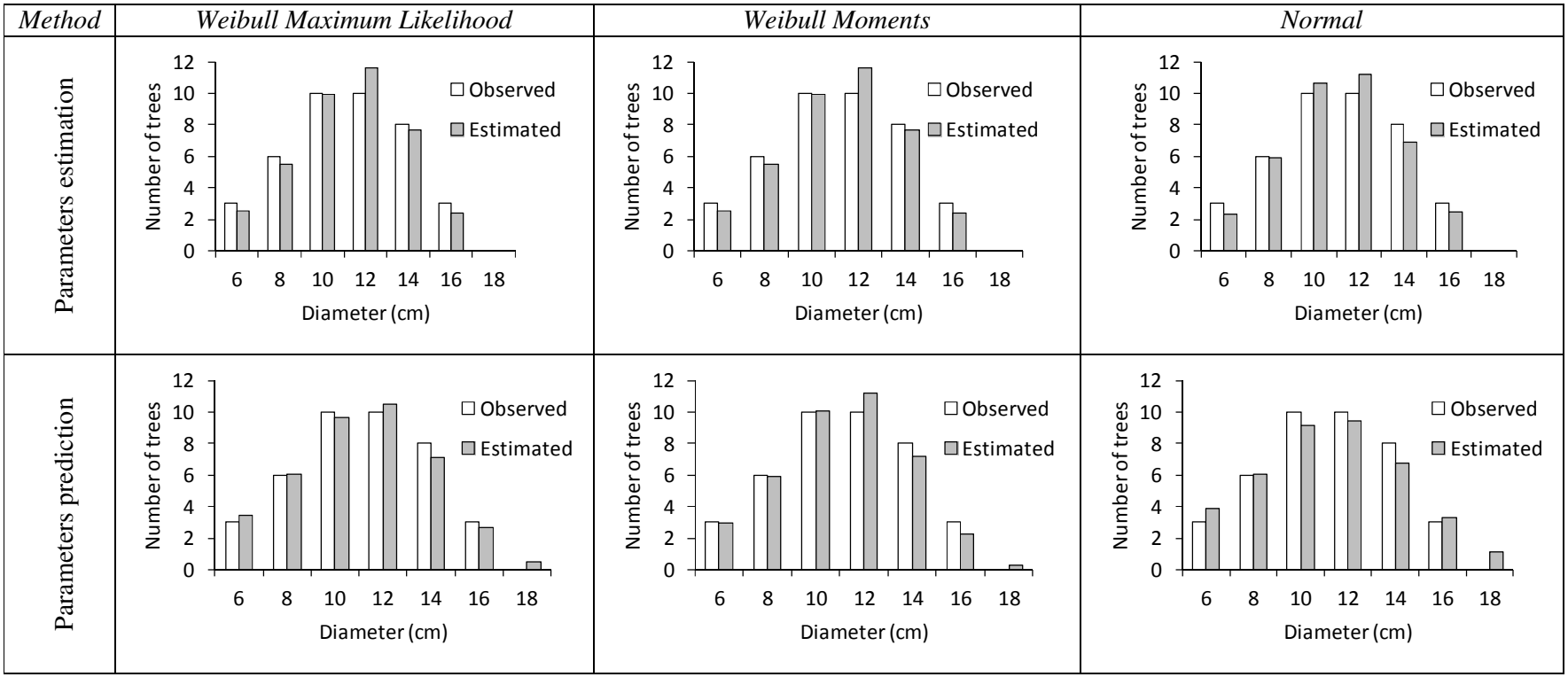


Fig. S2 - Observed versus estimated values for the parameter estimation and parameter prediction method according to each test function for the plot number 50 with a *right dissymmetrical distribution* of tree diameters (positively skewed).

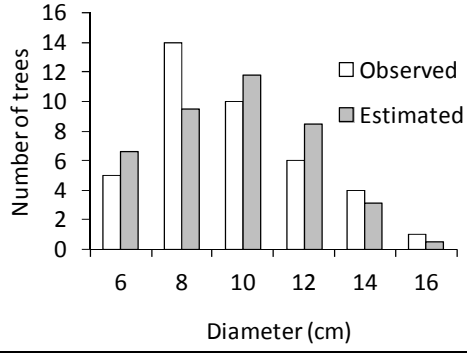
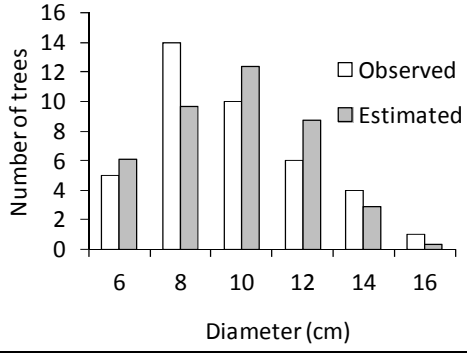
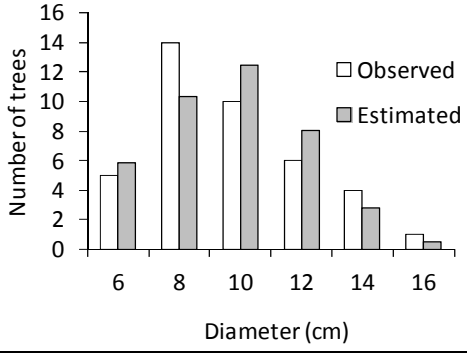
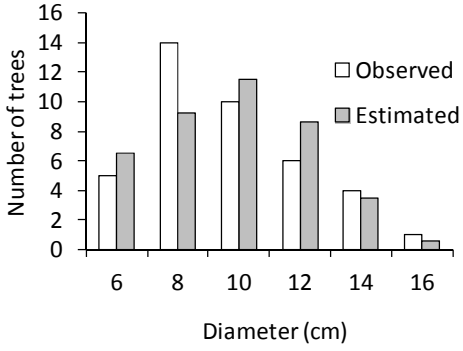
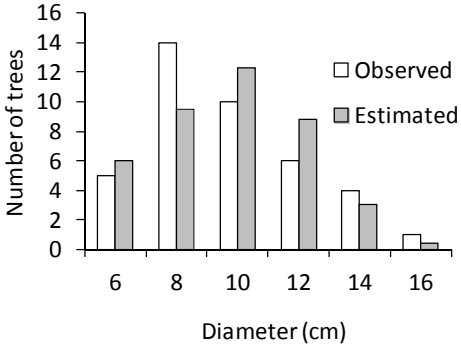
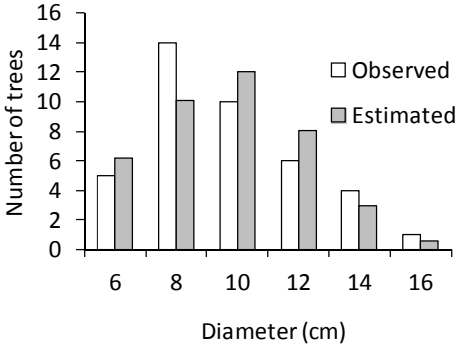
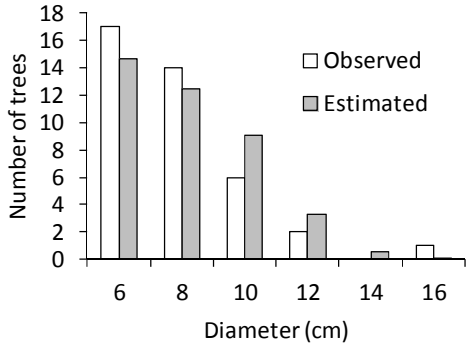
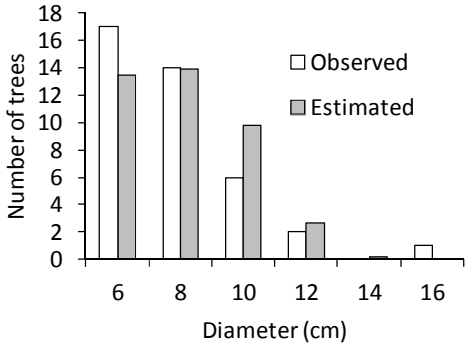
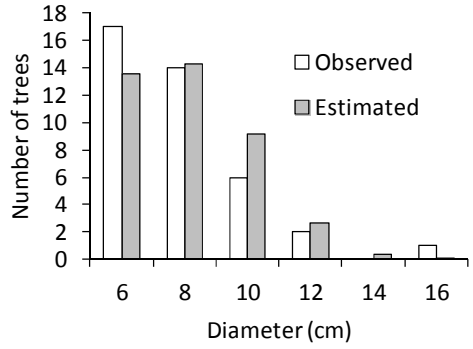
Method	*Weibull Maximum Likelihood*	*Weibull Moments*	*Normal*
Parameters estimation			
Parameters prediction			

Fig. S3 - Observed versus estimated values for the parameter estimation and parameter prediction approaches according to each test function for the plot number 44 with a *reverse-J distribution* of tree diameters.

Method	*Weibull Maximum Likelihood*	*Weibull Moments*	*Normal*
Parameters estimation			
Parameters prediction