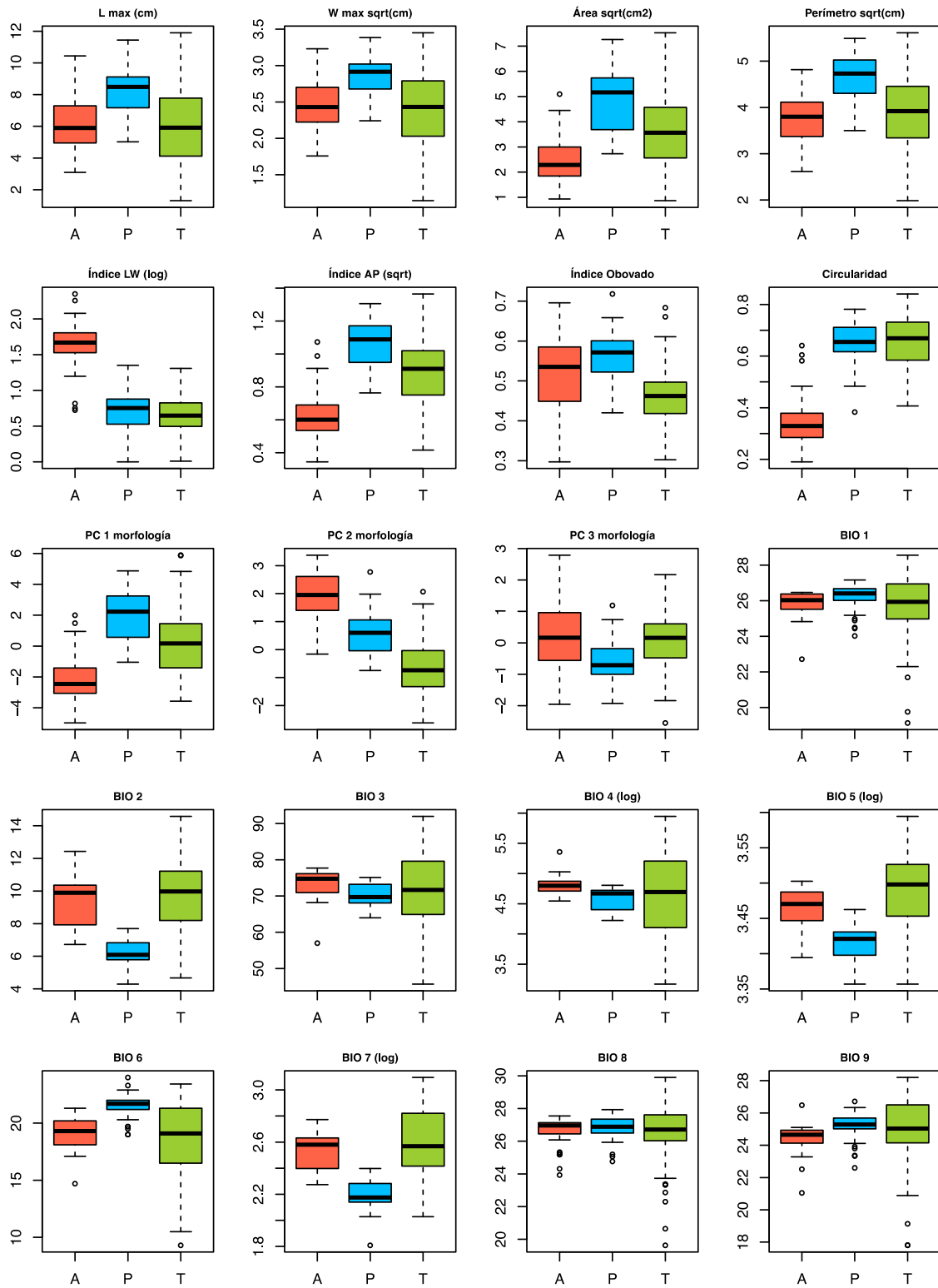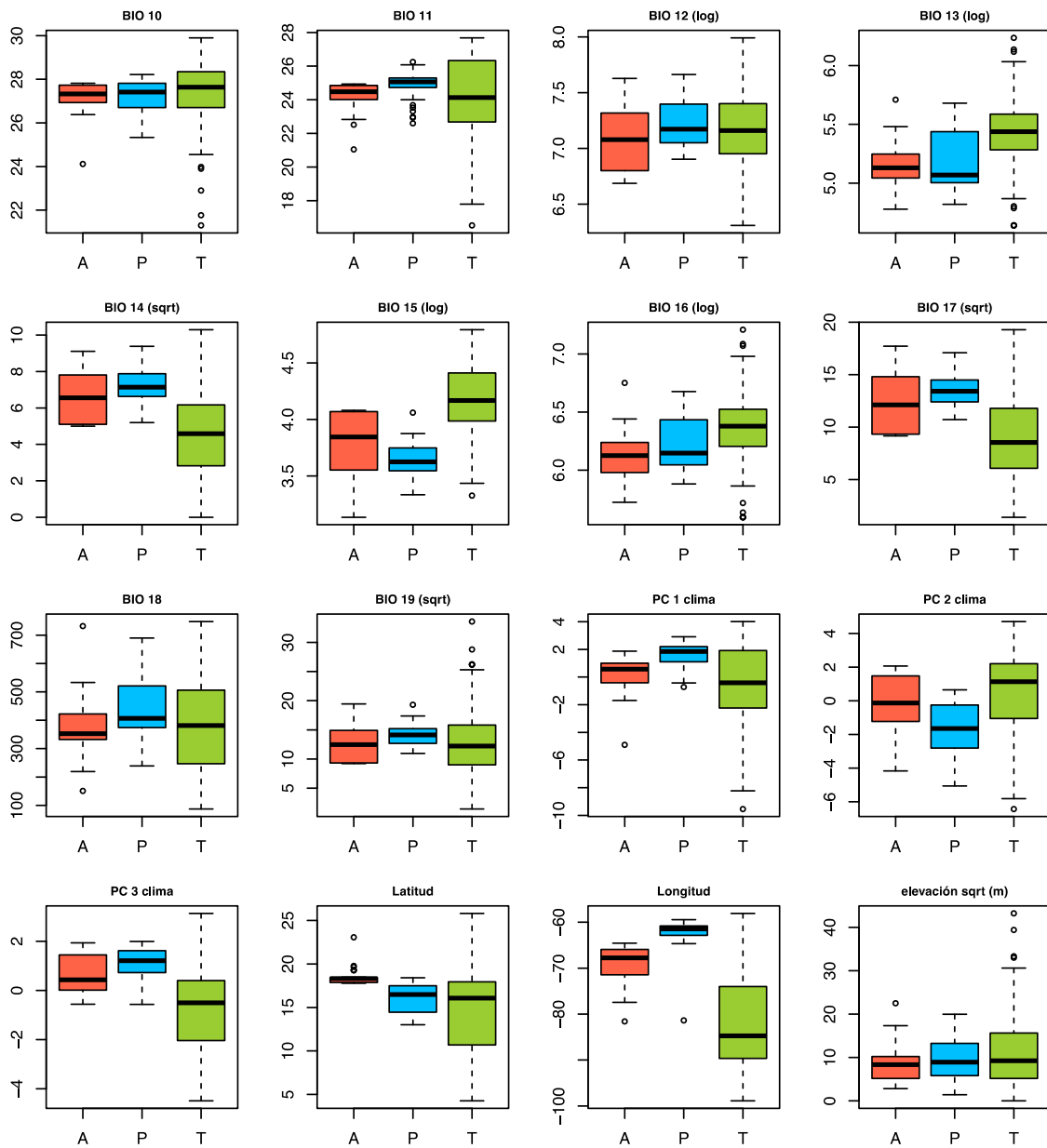**Supplementary file 3.** Variables included in this study.

Supplementary file 3.1. Variables included in this study and the transformations applied based on the inspection of the histograms, the boxplots in Supplementary file 3.2, and the Shapiro tests.

Variable	Transformation
Leaf maximum length, Lmax (cm)	–
Leaf maximum width, Wmax (cm)	–
Leaf area, A (cm^2)	SQRT
Leaf perimeter, P (cm)	SQRT
Leaf aspect ratio (Lmax / Wmax)	LOG
Area-perimeter ratio (A / P)	SQRT
Obovate index (see text)	SQRT
Circularity	–
Morphology PC 1	SQRT
Morphology PC 2	SQRT
Morphology PC 3	–
Latitude (decimal degrees)	–
Longitude (decimal degrees)	–
Climate PC 1	–
Climate PC 2	–
Climate PC 3	–
BIO 1 (mean annual T)	–
BIO 2 (mean T diurnal range, mean Tmax - Tmin)	–
BIO 3 (Isothermality, (BIO2 / BIO7) × 100)	–
BIO 4 (T seasonality, std.dev. in T × 100)	LOG
BIO 5 (maximum T of warmest month)	LOG
BIO 6 (minimum T of coldest month)	–
BIO 7 (T annual range, BIO5 - BIO6)	LOG
BIO 8 (mean T of wettest quarter)	–
BIO 9 (mean T of driest quarter)	–
BIO 10 (mean T of warmest quarter)	–
BIO 11 (mean T of coldest quarter)	–
BIO 12 (annual P)	LOG
BIO 13 (mean P of wettest month)	LOG
BIO 14 (mean P of driest month)	–
BIO 15 (P seasonality, CV)	LOG
BIO 16 (mean P of wettest quarter)	LOG
BIO 17 (mean P of driest quarter)	–
BIO 18 (mean P of warmest quarter)	–
BIO 19 (mean P of coldest quarter)	SQRT
Elevation (m a.s.l.)	SQRT

Supplementary file 3.2. Variables included in this study for the three main subspecies of *Euphorbia tithymaloides*, visualized by subspecies (A = *angustifolia*; P = *padifolia*; T = *tithymaloides*).