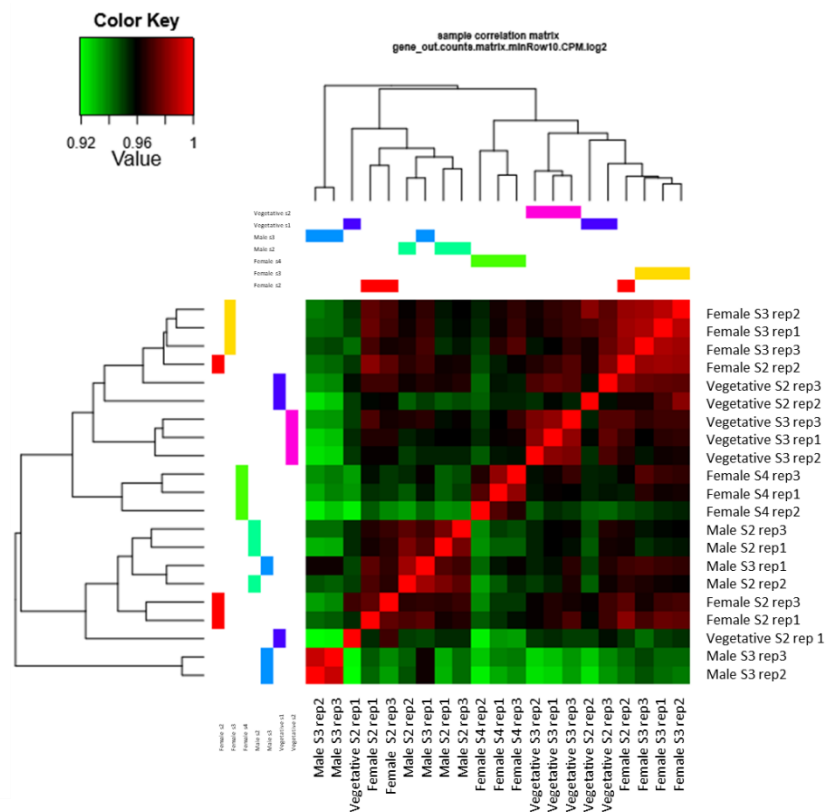
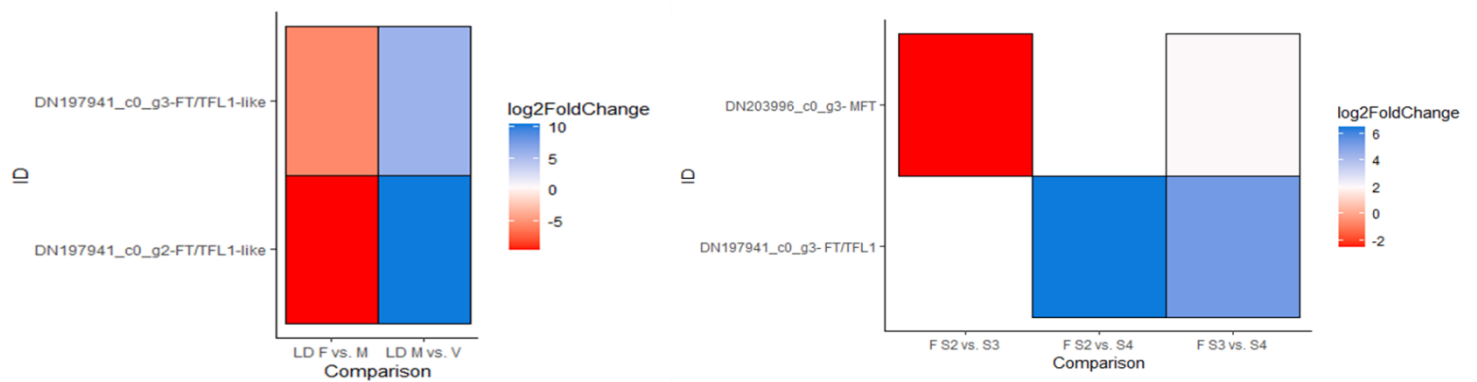




**Supplementary Figure S1.** *P. halepensis* tree with male and female cones. Spatial segregation of male and female cones is apparent. Clusters of male cone are located at the middle and lower crown, while female cones are at the upper crown. Picture was taken by Dr. Rakefet David-Schwartz.



**Supplementary Figure S2.** Heatmap of Pearson correlation analysis evaluating similarity between samples. The closer the correlation coefficient is to 1, the greater the similarity of the samples. Male stage 3 replicate 1, Female stage 2 replicate 2 and Vegetative stage 1 replicate 1 are at separate clusters.



**Supplementary Figure S3.** Differential expression of FT/TFL1 homologs between different developmental stages of the male (A) and female (B) cones. S, developmental stage; M, male; V, vegetative; F, female; S, developmental stage. Gene ID is composed of the TRINITY accession ID, followed by NCBI BLASTP derived homolog gene. Full DE list is provided in Supplementary Table 1.



**Supplementary Table S1. Primers that were used in the qPCR analysis:**

ID	Annotation	Forward primer sequences	Reverse primer sequences
TRINITY_DN191281_c0_g1_i4	AGL66	AGGCCGAGTACTACGAGAGG	GTGCTTGCACCGTTTGGATT
TRINITY_DN202447_c2_g4_i1	DAL3	AGGAAAGGGCGTGGTGATTT	TCACTGTCTTCGATACGGCTG
TRINITY_DN202447_c2_g1_i7	DAL3	GACCAGCAGGCAGGTTACTT	CCACTTCCGCATCACAGAGT
TRINITY_DN203580_c1_g2_i4	MADS2	TGAGGCGTGGA AAAAATGGGA	AGCAACCTGGGCATTACACA
TRINITY_DN199302_c0_g1_i1	DAL11	TCAATGGGGAGGGGGAAGAT	AAGACCTCCTTTCGCTTGG
TRINITY_DN204057_c1_g2_i1	DAL13	TCGACAAGGCAGCAACTCAA	ACGCATCTTGTTCTTCGCT
TRINITY_DN192084_c1_g2_i1	DAL14	TCTATGAGTTCGGAAGCGCC	CCAATTCTGTGCCTCCCGAT
TRINITY_DN192761_c1_g1_i2	MADS1	TCGAGCAGGAGTATAGGCGA	GAACCTCGGCCATTTGTTG
TRINITY_DN211306_c5_g2_i14	GbMADS5	GCACTCTGATCGCTTTGTGC	ATGGGCGTAGTTTGTGTGGT
TRINITY_DN211436_c2_g2_i2	E3 ubiquitin- protein ligase UPL6	TACTGCCTCGGCCTCTTTTG	CAGCAGCCTCCCATTTTGTG

**Supplementary Table S3.** Selected *P. halepensis* MADS-box genes and their expression patterns. Eight MADS-box genes were chosen to be further characterized for their expression patterns using qPCR (Figure 7). These genes were chosen due to their potential role in cone development reflected by their up – regulation in relation to vegetative meristems at least at one developmental stage.

Gene name	Closest protein BLAST homology	Arabidopsis protein with the highest alignment score	Down regulated	Up regulated	Estimated role in reproductive development
<i>PhDAL3.1</i>	67% - <i>DAL3</i> ( <i>Picea abies</i> ).	<i>CAL1, AGL10</i> E Value = 5e-13	----- -----	FS2 vs. VS1 MS2 vs. VS1 FS2 vs. FS3 FS2 vs. FS4 MS2 vs. MS3	Early specification of both cone types.
<i>PhDAL3.2</i>	80% <i>DAL3</i> ( <i>Picea Abies</i> ).	<i>AGL20, SOC1</i> E Value = 1e-47	----- -----	FS2 vs. VS1 MS2 vs. VS1 FS2 vs. FS3 FS2 vs. FS4 MS2 vs. MS3	Early specification of both cone types.
<i>PhMADS2</i>	96.6% <i>MADS2</i> ( <i>Pinus tabuliformis</i> ).	<i>PI</i> E Value = 3e-39	FS2 vs. MS2 FS3 vs. MS3 FS2 vs. FS3	MS2 vs. VS1 FS3 vs. VS2 MS3 vs. VS2 FS3 vs. FS4 MS2 vs. MS3	Development of both cone types, mostly in male cones at an early stage.
<i>PhDAL11</i>	97% <i>DAL11</i> ( <i>Pinus tabuliformis</i> ).	TT16, ABS, AGL32 E Value = 3e-36	FS2 vs. MS2 FS3 vs. MS3	MS2 vs. VS1 MS3 vs. VS2	Male cones development.
<i>PhDAL13</i>	99% <i>DAL13</i> ( <i>Pinus tabuliformis</i> ).	PI E Value = 1e-39	FS2 vs. MS2 FS3 vs. MS3 FS3 vs. VS2	MS2 vs. VS1 MS3 vs. VS2	Male cones development.
<i>PhDAL14</i>	100% <i>DAL14</i> ( <i>Pinus tabuliformis</i> ).	AGL6, RSB1 E Value = 2e-87	FS2 vs. FS3 FS2 vs. FS4 MS2 vs. MS3	FS3 vs. MS3 FS3 vs. VS2 MS3 vs. VS2	Late development of both cone types - especially the female cone.
<i>PhMADS1</i>	97% <i>MADS1</i> ( <i>Pinus tabuliformis</i> ).	<i>AP1, AtAP1, AGL7</i> E Value = 2e-32	----- -----	FS3 vs. MS3 FS3 vs. VS2 FS3 vs. FS4 FS2 vs. FS4	Female cone development – from an early stage.
<i>PhMADS5</i>	43% <i>GbMADS5</i> ( <i>Gingko biloba</i> )	<i>AGL22, FAQ1, SVP</i> E Value = 2e-33	FS2 vs. FS3	FS3 vs. MS3 FS3 vs. VS2 FS3 vs. FS4 MS2 vs. MS3	Female cone late development.

F – Female, M – Male, V – Vegetative, S – Developmental stage.