**Supplementary Information**

**Figure S1:** Genes found to be enriched near Copia retroelements are primarily associated with the phenylpropanoid and flavonoid biosynthesis pathways. Genes discovered in coast redwood are shown in a diamond. The red lines between gene nodes represent physical interactions while purple lines are co-expressed genes.

**Figure S2:** Gene family analysis depicting the shared and unique gene families among giant sequoia, coast redwood, and dawn redwood.

**Figure S3:** Alignment of coast redwood Scaffold\_195192 against giant sequoia chromosome 8 showing a large-scale region (approximately 70 Mb) of synteny. (The total length of each of giant sequoia chromosome 8 and the coast redwood scaffold is >500 Mb.)

**File S1** Discovery and assembly of two novel fungal genomes in the coast redwood genome data

**File S2** Comparative genomics, Gene family analysis details

**Table S1** 33 scaffolds which contain centromeric repeats