

Description of Additional Supplementary Files

File Name: Supplementary Data 1

Description: Summary of repeat content in the *S. dunnii* and *S. babylonica* genomes.

File Name: Supplementary Data 2

Description: Distribution of protein-coding gene and RNAs on each region of the genome of *Salix babylonica*.

File Name: Supplementary Data 3

Description: Distribution of protein-coding gene and RNAs on each region of the genome of *Salix dunnii*.

File Name: Supplementary Data 4

Description: Function annotation of the predicted protein-coding genes of *S. dunnii* and *S. babylonica*.

File Name: Supplementary Data 5

Description: Resequencing datasets of 40 weeping willow individuals.

File Name: Supplementary Data 6

Description: ARR17-like duplicates distribution in willows.

File Name: Supplementary Data 7

Description: The gene and repeat length percent in sex-linked region (SLR) and pseudoautosomal regions (PARs). The data of *S. arbutifolia* is from 1.

File Name: Supplementary Data 8

Description: The origin of specific genes within X-SLR and Y-SLR in *S. dunnii*. (Uniq represents that there is no homologous for this gene.)

File Name: Supplementary Data 9

Description: The position of inversions, ARR17-like partial duplicates, and ancient sex-linked genes in *S. arbutifolia*, *S. purpurea*, *S. babylonica* and *S. dunnii*.

File Name: Supplementary Data 10

Description: Details of plant materials.