

**S1 Table. List of naturally occurring and synthetic polyploids (*T. miscellus*) and diploid parents (*T. dubius* and *T. pratensis*) examined.**

Data are summarized from genomic DNA and cDNA CAPS and homeolog-specific RT-PCR. Note: Letters “D” and “P” correspond to the diploid parents *T. dubius* and *T. pratensis*, respectively. A ‘D’ or a ‘P’ indicates that only one parental homeolog was detected in genomic DNA or expressed. P>D indicates that the *T. pratensis* homeolog showed higher relative expression than the *T. dubius rbcS-1* homeolog in the *T. miscellus* individual and vice versa for D>P.

Species	Population /synthetic generation	Maternal parent (for polyploid)	Unique no./ Synthetic line	Lineage	Retention	Expression
Diploid species						
<i>T. dubius</i>	Spokane			2615-22	D	D
<i>T. dubius</i>	Spokane			2615-4	D	D
<i>T. dubius</i>	Spangle		1987	2616-8	D	D
<i>T. dubius</i>	Spangle		1988	2616-11	D	D
<i>T. dubius</i>	Oakesdale		1980	2670-9	D	D
<i>T. dubius</i>	Oakesdale		1981	2670-10	D	D
<i>T. dubius</i>	Garfield		1938	2687-3	D	D
<i>T. dubius</i>	Garfield		1943	2687-11	D	D
<i>T. dubius</i>	Pullman		1073	2613-1	D	D
<i>T. dubius</i>	Pullman		1095	2613-35	D	D
<i>T. dubius</i>	Troy			2683-1	D	D
<i>T. dubius</i>	Troy			2683-7	D	D
<i>T. pratensis</i>	Spangle		2138	2692-1	P	P
<i>T. pratensis</i>	Spangle		2139	2692-2	P	P
<i>T. pratensis</i>	Oakesdale		2150	2672-4	P	P
<i>T. pratensis</i>	Oakesdale		2151	2672-5	P	P
<i>T. pratensis</i>	Garfield		2136	2689-15	P	P
<i>T. pratensis</i>	Garfield		2137	2689-17	P	P

<i>T. pratensis</i>	Moscow		1049	2608-31	P	P
<i>T. pratensis</i>	Moscow			2608-35X	P	P
Short-liguled form						
<i>T. miscellus</i>	Spokane	<i>T. pratensis</i>		2664-3	Both	-
<i>T. miscellus</i>	Spokane	<i>T. pratensis</i>		2664-5a	Both	-
<i>T. miscellus</i>	Spokane	<i>T. pratensis</i>		2664-5b	Both	-
<i>T. miscellus</i>	Spokane	<i>T. pratensis</i>		2664-6	Both	-
<i>T. miscellus</i>	Spokane	<i>T. pratensis</i>		2617-1	Both	-
<i>T. miscellus</i>	Spokane	<i>T. pratensis</i>		2617-4	Both	-
<i>T. miscellus</i>	Spokane	<i>T. pratensis</i>		2617-6	Both	-
<i>T. miscellus</i>	Spokane	<i>T. pratensis</i>		2617-7	Both	-
<i>T. miscellus</i>	Spokane	<i>T. pratensis</i>		2617-8	Both	-
<i>T. miscellus</i>	Spokane	<i>T. pratensis</i>		2617-9	Both	-
<i>T. miscellus</i>	Spokane	<i>T. pratensis</i>		2617-12	Both	-
<i>T. miscellus</i>	Spokane	<i>T. pratensis</i>		2617-21	Both	-
<i>T. miscellus</i>	Spangle	<i>T. pratensis</i>	2121	2693-3	Both	-
<i>T. miscellus</i>	Spangle	<i>T. pratensis</i>	2123	2693-5	Both	-
<i>T. miscellus</i>	Spangle	<i>T. pratensis</i>	2125	2693-7	Both	P>D
<i>T. miscellus</i>	Spangle	<i>T. pratensis</i>	2126	2693-8	Both	Both
<i>T. miscellus</i>	Spangle	<i>T. pratensis</i>	2127	2693-9	P	P
<i>T. miscellus</i>	Spangle	<i>T. pratensis</i>	2129	2693-11	P	P
<i>T. miscellus</i>	Spangle	<i>T. pratensis</i>	2130	2693-12	Both	Both
<i>T. miscellus</i>	Spangle	<i>T. pratensis</i>	2131	2693-13	Both	-
<i>T. miscellus</i>	Spangle	<i>T. pratensis</i>	2132	2693-14	Both	-
<i>T. miscellus</i>	Spangle	<i>T. pratensis</i>	2133	2693-15	Both	-
<i>T. miscellus</i>	Rosalia	<i>T. pratensis</i>		2667-3	Both	-
<i>T. miscellus</i>	Rosalia	<i>T. pratensis</i>		2667-4	Both	-
<i>T. miscellus</i>	Oakesdale	<i>T. pratensis</i>	2055	2671-1	Both	-
<i>T. miscellus</i>	Oakesdale	<i>T. pratensis</i>	2056	2671-2	Both	P>D
<i>T. miscellus</i>	Oakesdale	<i>T. pratensis</i>	2057	2671-3	Both	-
<i>T. miscellus</i>	Oakesdale	<i>T. pratensis</i>	2058	2671-4	Both	Both
<i>T. miscellus</i>	Oakesdale	<i>T. pratensis</i>	2061	2671-7	Both	Both
<i>T. miscellus</i>	Oakesdale	<i>T. pratensis</i>	2063	2671-9	Both	-

<i>T. miscellus</i>	Oakesdale	<i>T. pratensis</i>	2064	2671-10	Both	-
<i>T. miscellus</i>	Oakesdale	<i>T. pratensis</i>	2065	2671-11	Both	P>D
<i>T. miscellus</i>	Garfield	<i>T. pratensis</i>	2099	2688-1	Both	-
<i>T. miscellus</i>	Garfield	<i>T. pratensis</i>	2100	2688-2	Both	Both
<i>T. miscellus</i>	Garfield	<i>T. pratensis</i>	2103	2688-5	Both	-
<i>T. miscellus</i>	Garfield	<i>T. pratensis</i>	2104	2688-6	Both	Both
<i>T. miscellus</i>	Garfield	<i>T. pratensis</i>	2106	2688-8	P	P
<i>T. miscellus</i>	Garfield	<i>T. pratensis</i>		2688-10	Both	Both
<i>T. miscellus</i>	Garfield	<i>T. pratensis</i>	2109	2688-11	Both	Both
<i>T. miscellus</i>	Garfield	<i>T. pratensis</i>	2110	2688-12	Both	Both
<i>T. miscellus</i>	Garfield	<i>T. pratensis</i>	2111	2688-13	Both	-
<i>T. miscellus</i>	Albion	<i>T. pratensis</i>		2625-1	Both	-
<i>T. miscellus</i>	Albion	<i>T. pratensis</i>		2625-2	Both	-
<i>T. miscellus</i>	Albion	<i>T. pratensis</i>		2625-3	D	-
<i>T. miscellus</i>	Albion	<i>T. pratensis</i>		2625-5	Both	-
<i>T. miscellus</i>	Albion	<i>T. pratensis</i>		2625-6	D	-
<i>T. miscellus</i>	Albion	<i>T. pratensis</i>		2625-8	D	-
<i>T. miscellus</i>	Albion	<i>T. pratensis</i>		2625-9	Both	-
<i>T. miscellus</i>	Albion	<i>T. pratensis</i>		2625-10	Both	-
<i>T. miscellus</i>	Moscow	<i>T. pratensis</i>	1154	2604-4	Both	-
<i>T. miscellus</i>	Moscow	<i>T. pratensis</i>	1157	2604-10	Both	-
<i>T. miscellus</i>	Moscow	<i>T. pratensis</i>	1158	2604-11	Both	Both
<i>T. miscellus</i>	Moscow	<i>T. pratensis</i>	1162	2604-15	Both	Both
<i>T. miscellus</i>	Moscow	<i>T. pratensis</i>		2604-17	P	P
<i>T. miscellus</i>	Moscow	<i>T. pratensis</i>	1171	2604-20	Both	Both
<i>T. miscellus</i>	Moscow	<i>T. pratensis</i>	1173	2604-22	P	P
<i>T. miscellus</i>	Moscow	<i>T. pratensis</i>	1176	2604-24	Both	-
<i>T. miscellus</i>	Moscow	<i>T. pratensis</i>	1186	2604-35	Both	-
<i>T. miscellus</i>	Moscow	<i>T. pratensis</i>	1402	2604-43	Both	P>D
<i>T. miscellus</i>	Troy	<i>T. pratensis</i>		2682-1	Both	-
<i>T. miscellus</i>	Troy	<i>T. pratensis</i>		2682-2	Both	-
<i>T. miscellus</i>	Troy	<i>T. pratensis</i>		2682-3	Both	-
<i>T. miscellus</i>	Troy	<i>T. pratensis</i>		2682-4	Both	-

<i>T. miscellus</i>	Troy	<i>T. pratensis</i>		2682-5	P	-
<i>T. miscellus</i>	Troy	<i>T. pratensis</i>		2682-6	Both	-
<i>T. miscellus</i>	Troy	<i>T. pratensis</i>		2682-7	Both	-
<i>T. miscellus</i>	Troy	<i>T. pratensis</i>		2682-11	Both	-
<i>T. miscellus</i>	Troy	<i>T. pratensis</i>		2682-12	Both	-
Long-liguled form						
<i>T. miscellus</i>	Pullman	<i>T. dubius</i>		2605-3	Both	Both
<i>T. miscellus</i>	Pullman	<i>T. dubius</i>	1194	2605-4	Both	-
<i>T. miscellus</i>	Pullman	<i>T. dubius</i>	1196	2605-7	Both	Both
<i>T. miscellus</i>	Pullman	<i>T. dubius</i>		2605-9	Both	D>P
<i>T. miscellus</i>	Pullman	<i>T. dubius</i>	1203	2605-13	Both	Both
<i>T. miscellus</i>	Pullman	<i>T. dubius</i>	1204	2605-14	Both	Both
<i>T. miscellus</i>	Pullman	<i>T. dubius</i>	1210	2605-24	Both	Both
<i>T. miscellus</i>	Pullman	<i>T. dubius</i>	1211	2605-28	D	D
<i>T. miscellus</i>	Pullman	<i>T. dubius</i>	1212	2605-29	Both	Both
<i>T. miscellus</i>	Pullman	<i>T. dubius</i>	1216	2605-42	Both	Both
<i>T. miscellus</i>	Pullman	<i>T. dubius</i>	1221	2605-46	Both	D>P
Synthetic polyploids						
<i>T. miscellus</i>	S <sub>0</sub>	<i>T. pratensis</i>	111-1		Both	-
<i>T. miscellus</i>	S <sub>1</sub>	<i>T. pratensis</i>	111-1-7		Both	-
<i>T. miscellus</i>	S <sub>1</sub>	<i>T. pratensis</i>	111-1-8		Both	-
<i>T. miscellus</i>	S <sub>1</sub>	<i>T. pratensis</i>	111-1-23		Both	Both
<i>T. miscellus</i>	S <sub>0</sub>	<i>T. pratensis</i>	111-4		Both	-
<i>T. miscellus</i>	S <sub>1</sub>	<i>T. pratensis</i>	111-4-4		Both	-
<i>T. miscellus</i>	S <sub>1</sub>	<i>T. pratensis</i>	111-4-17		Both	Both
<i>T. miscellus</i>	S <sub>0</sub>	<i>T. pratensis</i>	111-5		Both	-
<i>T. miscellus</i>	S <sub>1</sub>	<i>T. pratensis</i>	111-5-7		Both	-
<i>T. miscellus</i>	S <sub>1</sub>	<i>T. pratensis</i>	111-5-9		Both	-
<i>T. miscellus</i>	S <sub>1</sub>	<i>T. pratensis</i>	111-5-18		Both	Both
<i>T. miscellus</i>	S <sub>0</sub>	<i>T. pratensis</i>	111-7		Both	-
<i>T. miscellus</i>	S <sub>1</sub>	<i>T. pratensis</i>	111-7-11		Both	Both
<i>T. miscellus</i>	S <sub>1</sub>	<i>T. pratensis</i>	67-2-1		Both	-

<i>T. miscellus</i>	S <sub>1</sub>	<i>T. pratensis</i>	67-2-4		Both	-
<i>T. miscellus</i>	S <sub>1</sub>	<i>T. pratensis</i>	67-2-7		Both	Both
<i>T. miscellus</i>	S <sub>1</sub>	<i>T. pratensis</i>	67-3-6		Both	-
<i>T. miscellus</i>	S <sub>1</sub>	<i>T. pratensis</i>	67-3-8		Both	-
<i>T. miscellus</i>	S <sub>0</sub>	<i>T. pratensis</i>	79-1		Both	-
<i>T. miscellus</i>	S <sub>1</sub>	<i>T. pratensis</i>	79-1-3		Both	-
<i>T. miscellus</i>	S <sub>1</sub>	<i>T. pratensis</i>	79-11-3		Both	-
<i>T. miscellus</i>	S <sub>0</sub>	<i>T. dubius</i>	119-2		Both	-
<i>T. miscellus</i>	S <sub>0</sub>	<i>T. dubius</i>	129-7		Both	-
<i>T. miscellus</i>	S <sub>1</sub>	<i>T. dubius</i>	129-7-1		Both	-
<i>T. miscellus</i>	S <sub>1</sub>	<i>T. dubius</i>	129-7-14		Both	Both