ISU Monarch Data Summary for NCIG

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Table 1 provides average land cover percentage averaged across all data collection events.
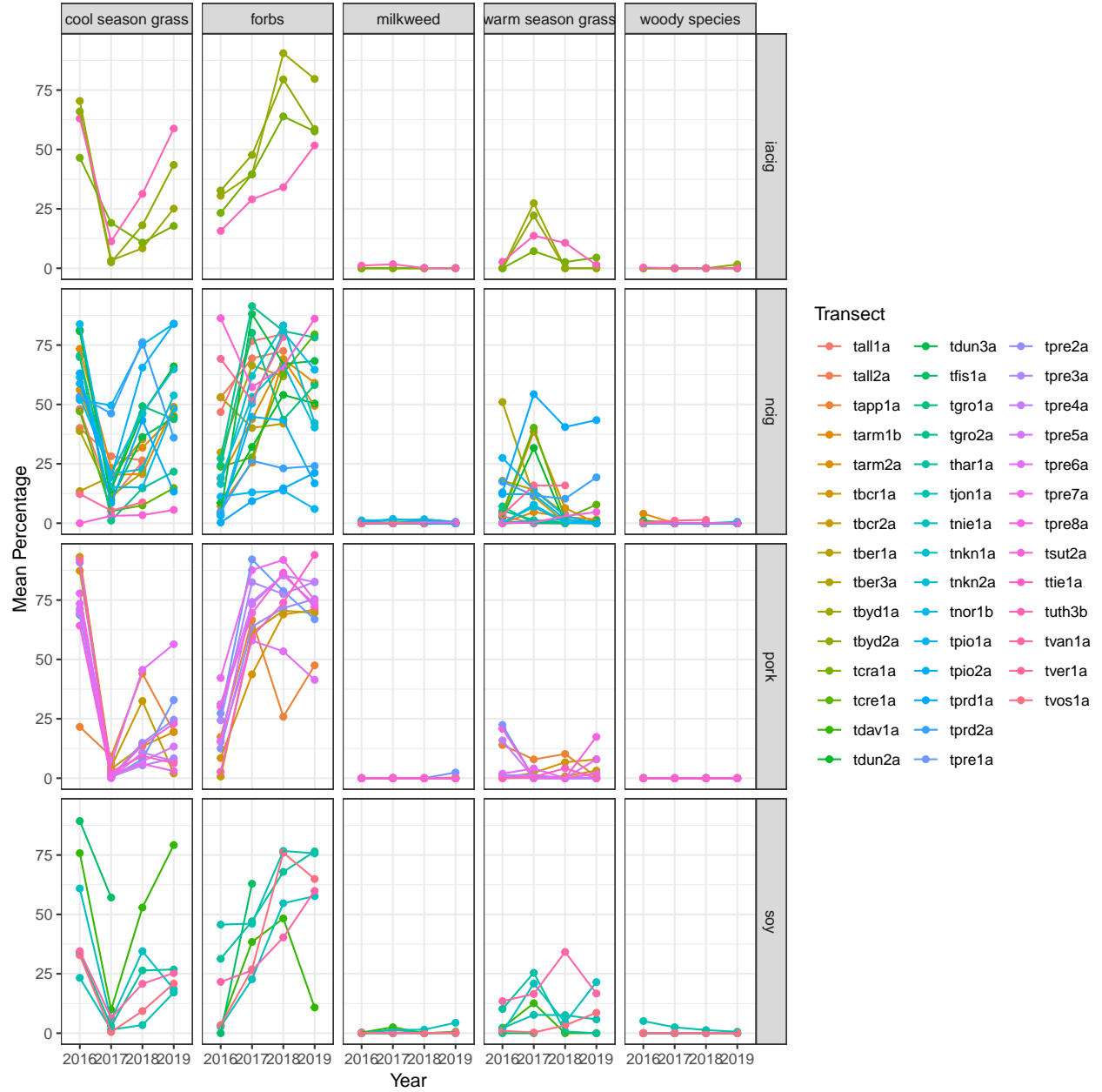
Table 1: Daubenmire: average land cover % across all rounds Caption 1234

transectID	cool season grass 2016	2017	2018	2019	warm season grass 2016	2017	2018	2019	forbs 2016	2017	2018	2019	milkweed 2016	2017	2018	2019	woody species 2016	2017	2018	2019	bare ground 2016	2017	2018	2019	leaf litter 2016	2017	2018	2019	2016	2017	2018
tall1a	48	10	26	na	3	0	0	na	0	0	0	na	47	77	80	na	0	0	0	na	0	0	0	na	9	46	24	na	42	20	25
tall2a	40	28	26	na	0	0	0	na	0	0	0	na	53	69	72	na	0	0	0	na	0	0	0	na	7	37	43	na	48	35	26
tapp1a	22	9	44	20	14	8	10	1	0	0	0	0	17	67	26	48	0	0	0	0	0	0	0	0	48	25	15	41	28	29	66
tarm1b	73	23	32	45	0	5	3	2	0	0	0	0	7	26	69	49	0	0	0	0	4	0	0	0	3	21	37	36	96	50	48
tarm2a	56	20	21	49	3	38	6	0	0	0	0	0	19	44	69	59	0	0	0	0	0	0	0	0	2	24	5	16	96	45	78
tbcr1a	87	4	14	19	0	2	7	8	0	0	0	0	8	44	69	71	0	0	0	0	0	0	0	0	4	24	12	7	33	53	71
tbcr2a	93	5	32	2	0	0	1	3	0	0	0	0	1	61	70	70	0	0	0	0	0	0	0	0	2	1	1	10	44	92	86
tber1a	14	20	35	na	18	14	4	na	0	0	0	na	53	40	42	na	0	0	0	na	0	0	0	na	52	27	29	na	25	57	31
tber3a	39	11	21	na	51	11	0	na	0	0	0	na	30	66	62	na	0	0	0	na	0	0	0	na	39	30	31	na	28	54	28
tbyd1a	70	3	8	25	0	27	0	0	0	0	0	0	30	40	90	80	0	0	0	0	0	0	0	0	3	3	17	25	66	38	40
tbyd2a	66	2	18	44	0	22	0	0	0	0	0	2	33	48	80	59	0	0	0	0	0	0	0	0	5	3	16	36	59	34	35
tcra1a	46	19	11	18	0	7	3	4	0	0	3	0	23	40	64	58	0	0	1	0	0	0	0	0	14	17	17	38	49	58	70
tcre1a	47	5	8	15	4	40	2	8	0	0	0	0	24	28	63	80	0	2	0	0	0	0	0	0	2	4	11	9	82	84	77
tdav1a	76	10	53	79	2	13	0	0	0	0	0	0	3	38	48	11	0	0	0	1	0	0	0	0	7	13	56	6	85	57	37
tdun2a	81	14	46	66	2	32	0	0	0	0	0	0	9	32	54	50	0	0	0	0	1	0	0	0	12	28	10	7	72	54	38
tdun3a	81	10	36	44	0	0	0	1	0	0	0	1	4	88	67	68	0	0	0	0	0	0	0	0	5	14	11	10	78	44	30
tfis1a	89	57	na	na	0	0	na	na	0	0	na	na	0	63	na	na	0	0	na	na	0	0	na	na	2	2	na	na	85	67	na
tgro1a	70	15	49	44	5	1	0	0	0	0	0	0	24	80	44	58	1	0	1	0	0	0	0	0	16	19	20	4	60	57	73
tgro2a	71	1	15	22	7	0	0	0	0	0	0	0	27	91	81	78	0	0	0	0	0	0	0	0	19	20	27	20	64	47	60
thar1a	34	3	26	27	10	25	1	0	0	0	0	0	31	47	68	76	0	2	0	0	0	2	1	0	13	16	27	17	51	30	61
tjon1a	23	2	3	17	2	8	8	6	0	0	0	0	46	46	77	76	0	1	0	0	5	0	1	0	14	12	40	43	67	52	52
tnie1a	61	5	34	18	0	21	4	22	0	0	0	0	3	23	55	58	1	0	2	4	0	0	0	0	3	13	9	7	77	57	80
tnkn1a	53	21	23	54	0	1	2	0	0	0	0	0	16	62	83	42	0	0	0	0	0	0	0	0	7	40	11	32	77	38	70
tnkn2a	61	21	46	65	0	7	0	0	0	0	0	0	19	53	67	40	0	0	0	0	0	0	0	0	10	47	6	15	73	30	66
tnor1b	84	15	15	48	0	8	0	0	0	0	2	1	3	50	80	65	1	1	1	1	0	0	0	0	5	24	14	8	75	63	72
tpio1a	52	50	75	84	28	14	3	0	0	0	0	0	11	13	14	6	0	2	1	0	0	0	0	0	8	10	6	3	73	71	46
tpio2a	59	19	66	84	12	12	2	0	0	0	0	0	3	45	43	17	0	0	0	0	0	0	0	0	8	14	19	2	86	67	28
tprd1a	63	8	43	13	13	54	40	43	0	0	0	0	0	9	15	21	0	0	0	0	0	0	0	0	1	8	5	1	84	80	45
tprd2a	53	46	76	36	18	12	10	19	0	0	0	0	5	26	23	24	0	0	2	0	0	0	0	0	1	2	8	1	89	87	62
tpre1a	69	0	8	33	22	0	0	0	0	0	0	0	27	92	79	67	0	0	0	0	0	0	0	2	3	50	7	38	53	27	20
tpre2a	91	1	15	25	1	0	0	0	0	0	0	0	12	64	72	75	0	1	0	0	0	0	0	0	1	14	4	44	61	74	21
tpre3a	71	1	5	8	1	1	0	0	0	0	0	0	24	82	78	83	0	2	0	1	0	0	0	0	2	34	1	45	76	45	33
tpre4a	71	0	11	7	16	0	0	0	0	0	3	2	16	74	85	82	0	0	1	0	0	0	0	0	6	37	2	36	80	46	19
tpre5a	70	0	7	13	0	1	0	0	0	0	0	0	31	73	85	73	0	0	0	0	0	0	0	0	2	22	2	32	67	60	23
tpre6a	74	6	46	56	2	4	0	8	0	0	0	0	15	58	53	41	0	0	0	0	0	0	0	0	26	30	12	19	62	60	4
tpre7a	78	2	6	3	0	0	0	2	0	0	0	0	42	88	92	75	0	0	0	0	0	0	0	0	2	27	8	57	46	45	15
tpre8a	64	0	14	23	21	0	0	0	0	0	0	17	30	70	86	72	0	0	0	0	0	0	0	0	7	17	1	23	64	65	15
tsut2a	0	3	3	6	0	0	3	5	0	0	0	0	86	57	66	86	0	0	0	0	0	0	0	0	78	78	50	68	0	9	8
ttie1a	92	3	9	6	3	0	4	0	0	0	3	0	3	60	74	94	0	0	0	0	0	0	0	0	2	41	45	82	33	49	38
tuth3b	63	11	31	59	3	14	11	1	0	0	0	0	16	29	34	52	0	0	0	0	0	0	0	0	6	12	30	18	77	37	47
tvan1a	34	6	21	25	14	16	34	17	0	0	0	0	22	26	40	60	0	0	0	0	0	0	0	0	2	4	10	12	85	53	88
tver1a	12	5	9	na	4	16	16	na	0	0	0	na	69	52	78	na	0	0	0	na	0	1	1	na	33	18	32	na	28	64	51
tvos1a	33	0	9	21	1	0	3	9	0	0	0	0	3	27	76	65	0	0	0	0	0	0	0	0	2	35	67	38	92	64	27
Mean	59	12	26	33	6	10	4	5	22	53	64	59	22	53	64	59	0	0	0	0	0	0	0	0	11	22	19	25	63	52	45

2

Figure 1: This plots the mean percentage of land cover by year and is faceted by class. The colors correspond to the different trasects. Caption 1111
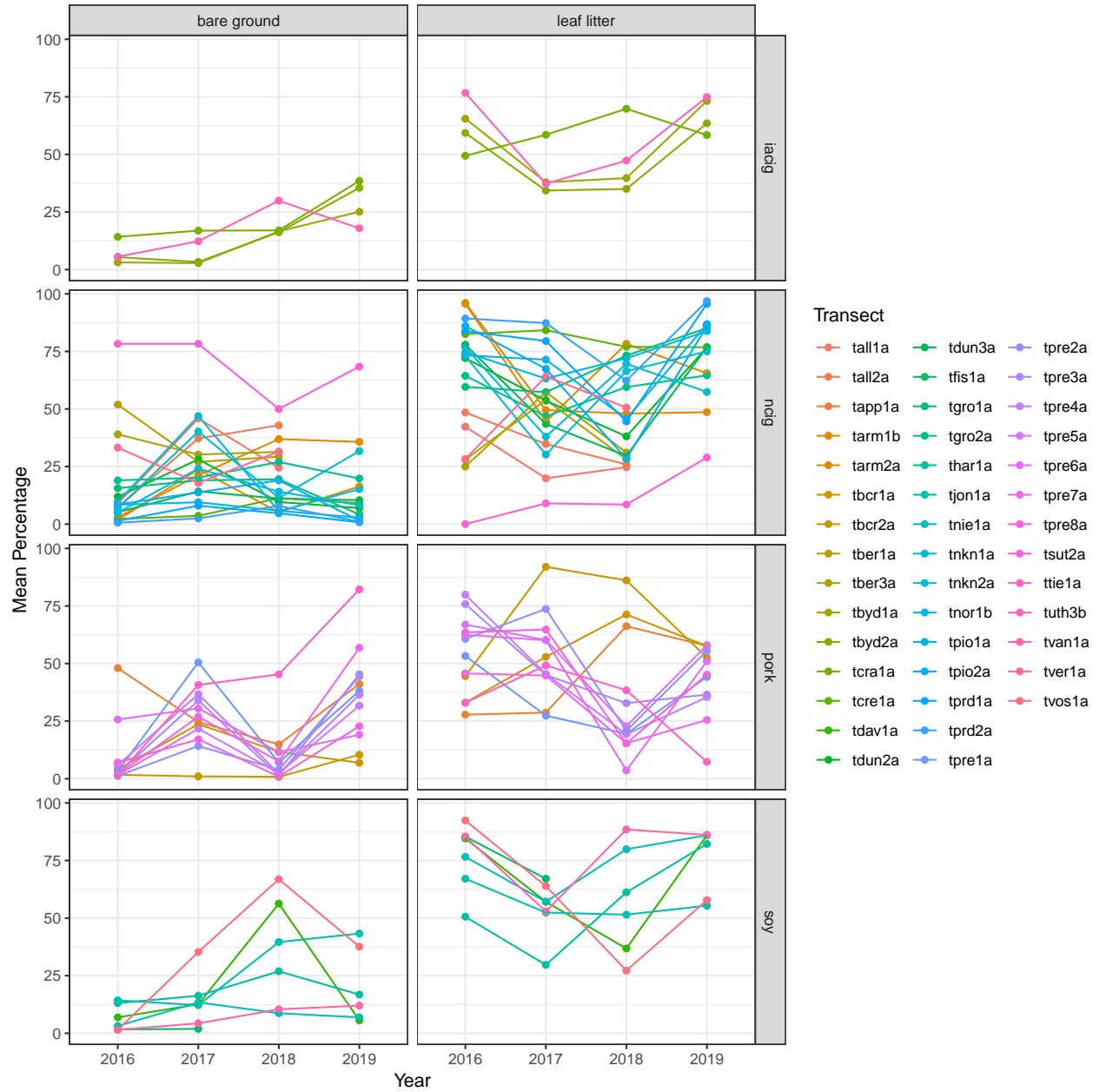
Figure 2: This plots the mean percentage of land cover by year and is faceted by class. The colors correspond to the different trasects. Caption 1112
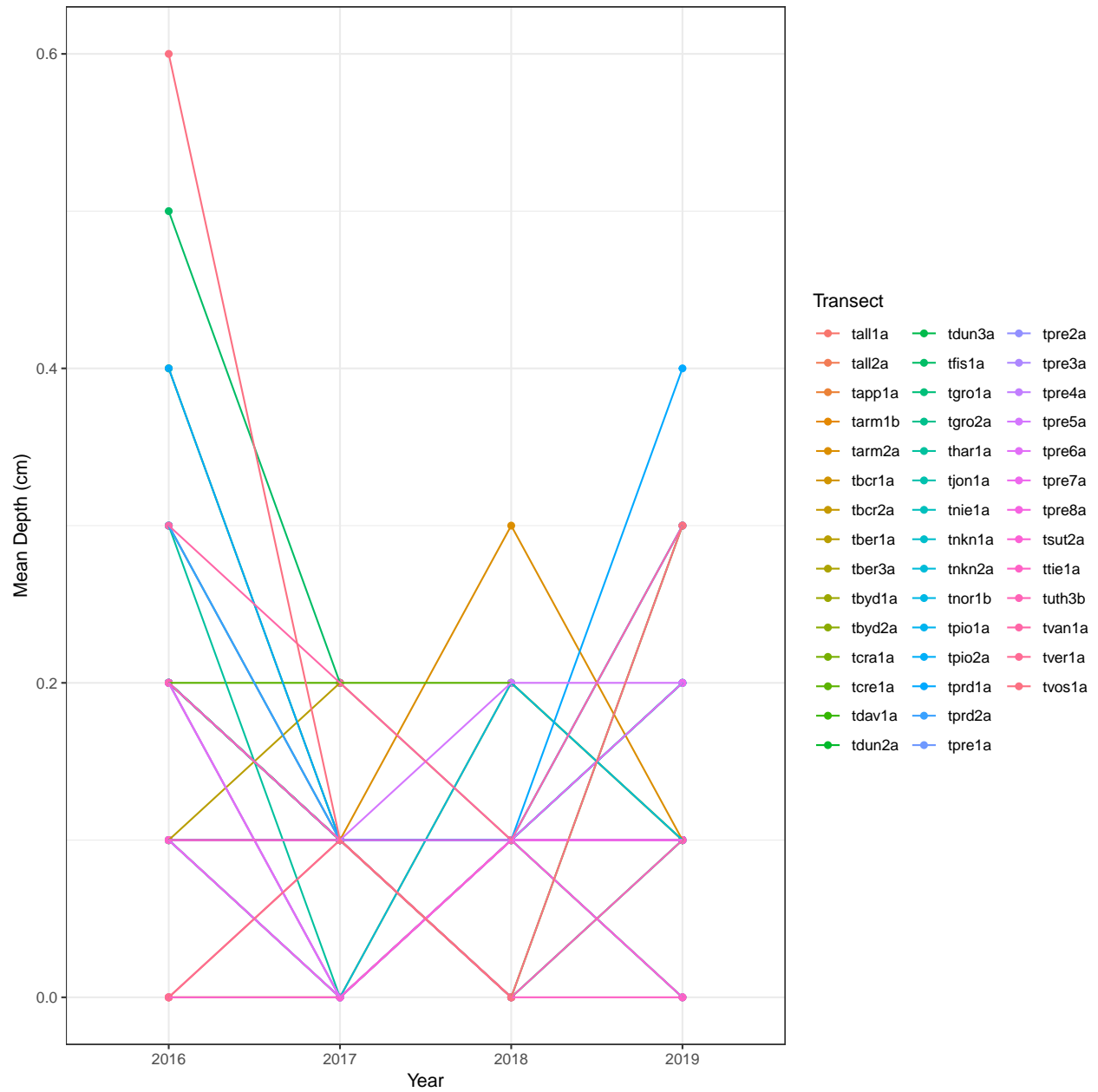
Figure 3: This plots the mean percentage of land cover by year and is faceted by class. The colors correspond to the different transects. Caption 1113

Table 2: Daubenmire Milkweed: average ramet stems across all rounds Caption 1115

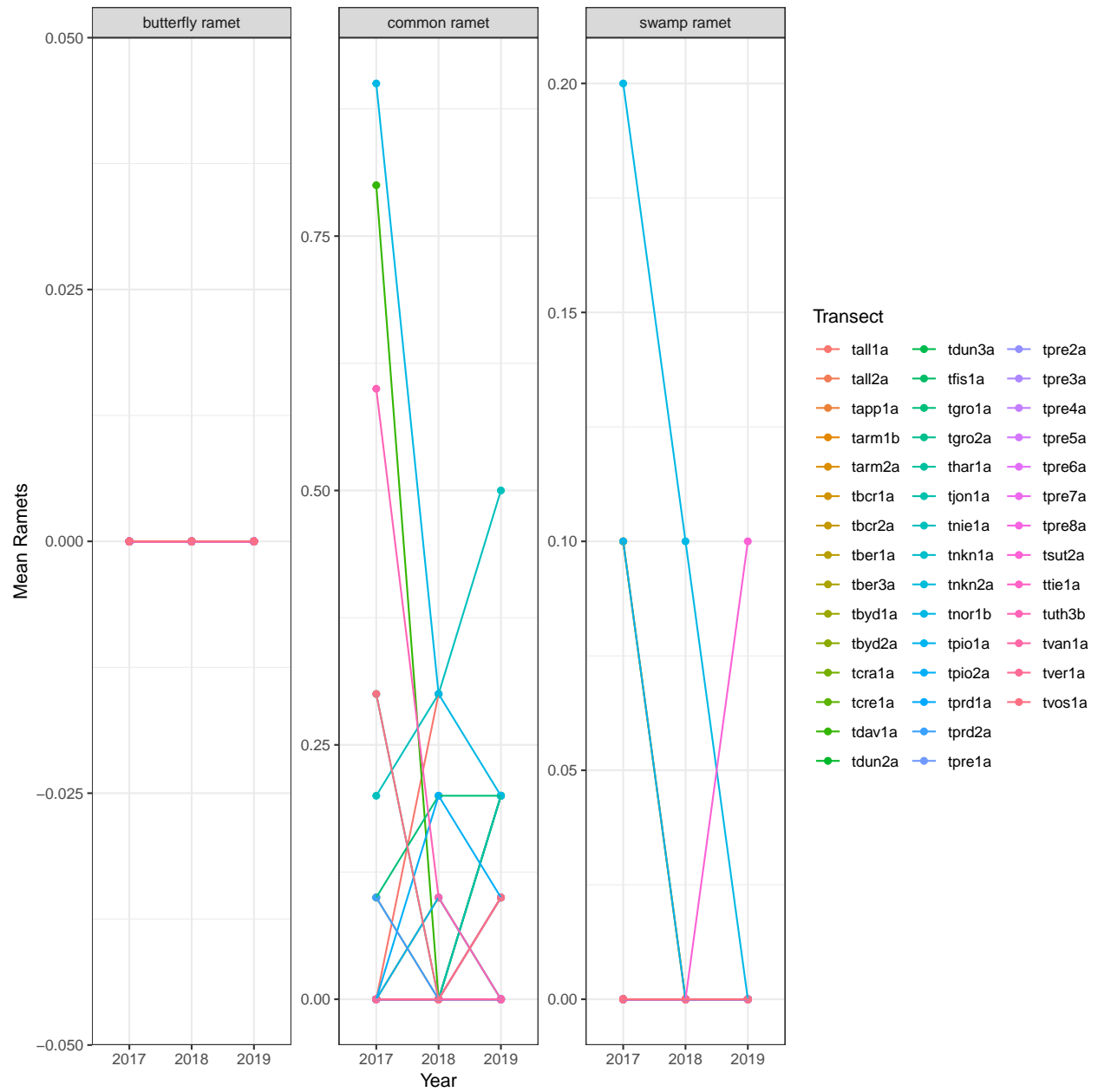| transectID	butterfly ramet			common ramet			swamp ramet		
	2017	2018	2019	2017	2018	2019	2017	2018	2019
tall1a	0.0	0.0	na	0.0	0.3	na	0.0	0.0	na
tall2a	0.0	0.0	na	0.0	0.0	na	0.0	0.0	na
tapp1a	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
tarm1b	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
tarm2a	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
tbcr1a	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0
tbcr2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tber1a	0.0	0.0	na	0.0	0.0	na	0.0	0.0	na
tber3a	0.0	0.0	na	0.0	0.0	na	0.0	0.0	na
tbyd1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tbyd2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tcra1a	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
tcre1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tdav1a	0.0	0.0	0.0	0.8	0.0	0.2	0.0	0.0	0.0
tdum2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tdum3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tfis1a	0.0	na	na	0.0	na	na	0.0	na	na
tgro1a	0.0	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0
tgro2a	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
thar1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tjon1a	0.0	0.0	0.0	0.3	0.0	0.2	0.0	0.0	0.0
tnie1a	0.0	0.0	0.0	0.2	0.3	0.5	0.0	0.0	0.0
tnkn1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tnkn2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tnor1b	0.0	0.0	0.0	0.9	0.3	0.2	0.2	0.1	0.0
tpio1a	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0
tpio2a	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0
tprd1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tprd2a	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0
tpre1a	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
tpre2a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tpre3a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tpre4a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tpre5a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tpre6a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tpre7a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tpre8a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tsut2a	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
ttie1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tuth3b	0.0	0.0	0.0	0.6	0.1	0.0	0.0	0.0	0.0
tvan1a	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
tver1a	0.0	0.0	na	0.0	0.0	na	0.0	0.0	na
tvos1a	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.0	0.0
Mean	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0

Figure 4: This plots the mean ramets by year and is faceted by species. The colors correspond to the different transects. Caption 1115

	Df	Sum of Sq	RSS	AIC	F value	Pr(>F)
<none>			373842.69	6701.59		
class	6	524340.70	898183.39	7702.00	266.96	0.0000
year	3	4092.68	377935.36	6708.17	4.17	0.0060
grant	3	1029.22	374871.91	6698.77	1.05	0.3704