

Can machine learning algorithms successfully predict grassland aboveground biomass?

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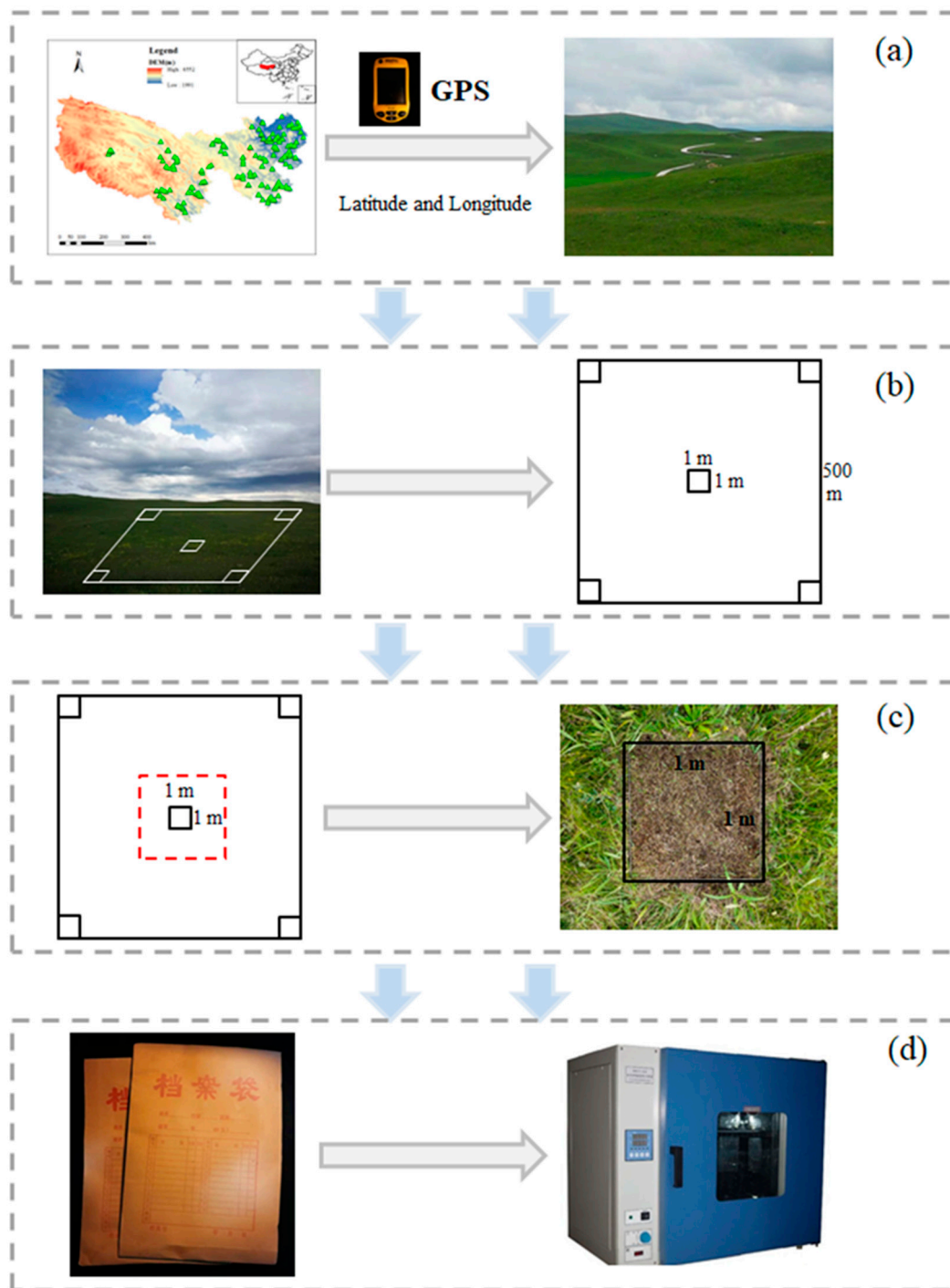


Figure S1. Schematic diagram of sampling in the TRHR.

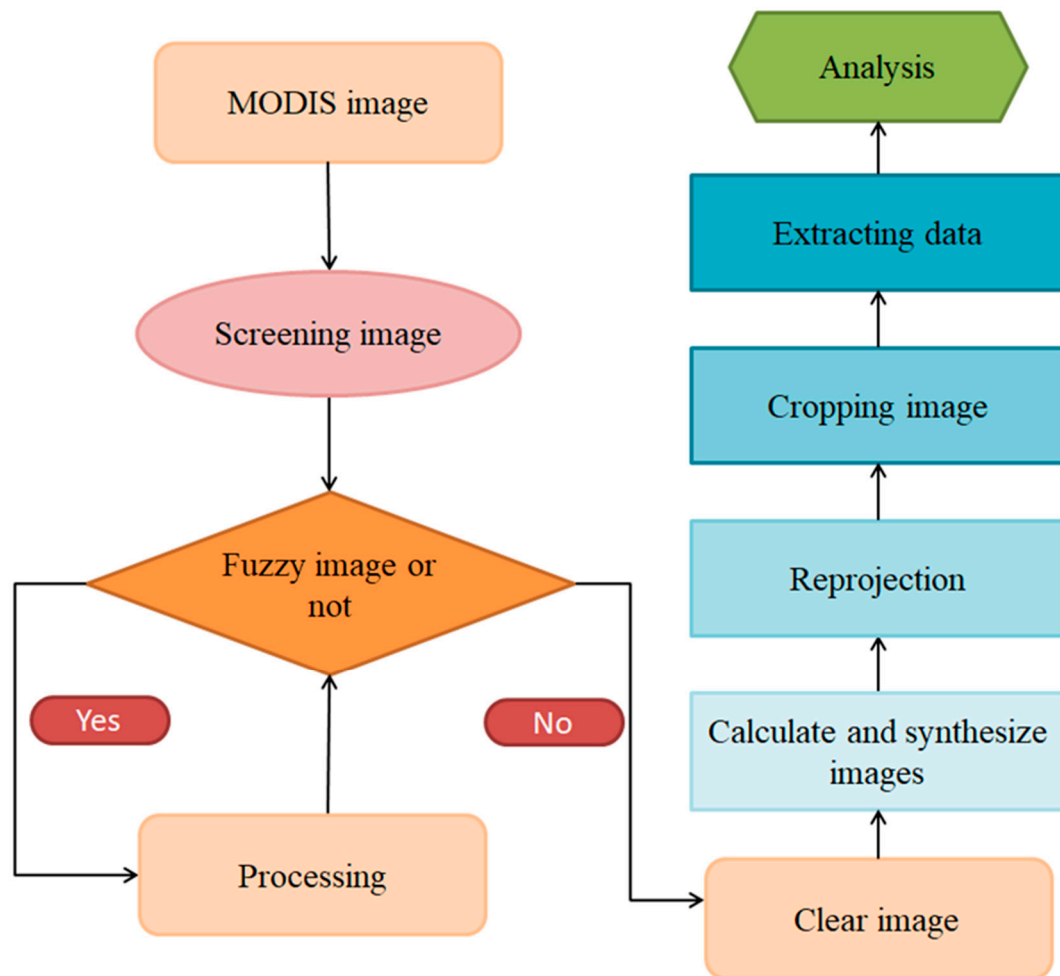
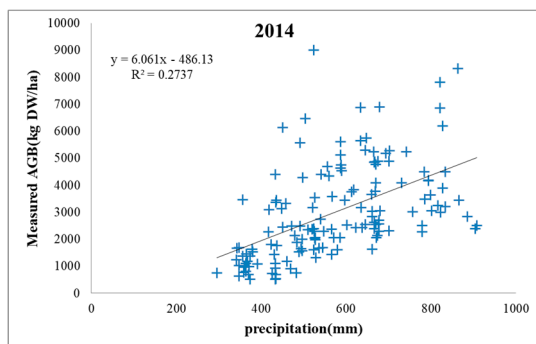
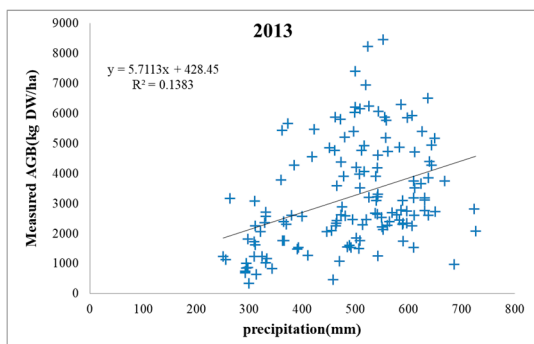
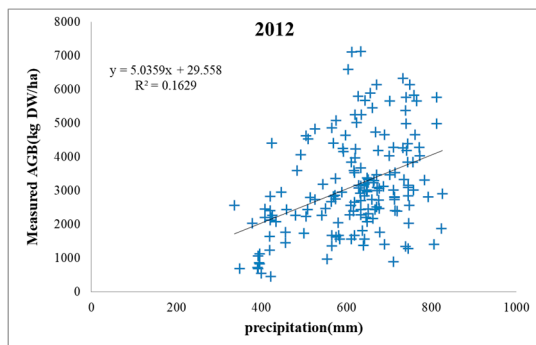
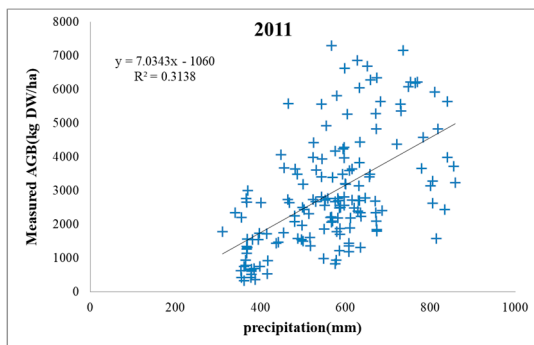
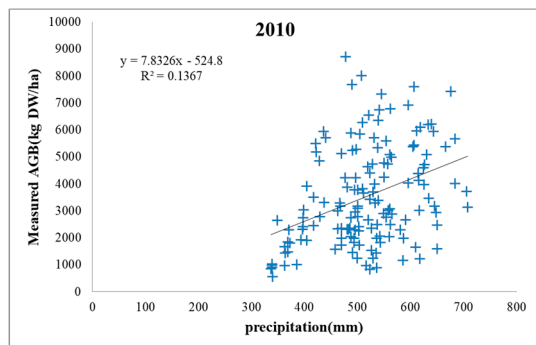
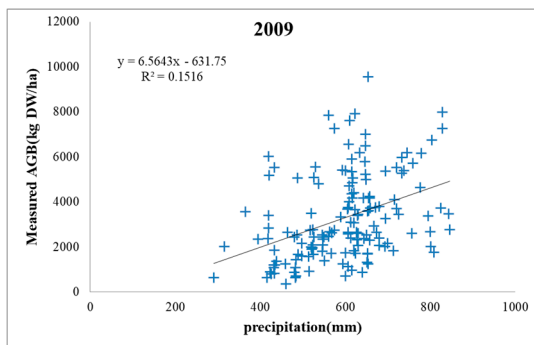
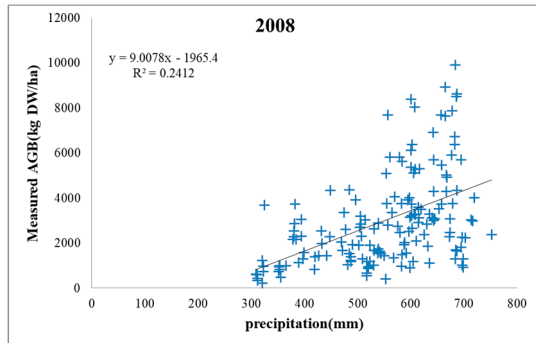
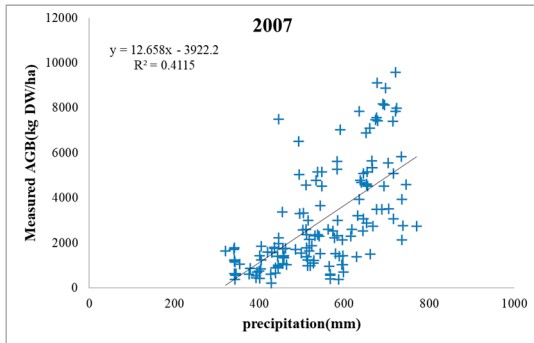
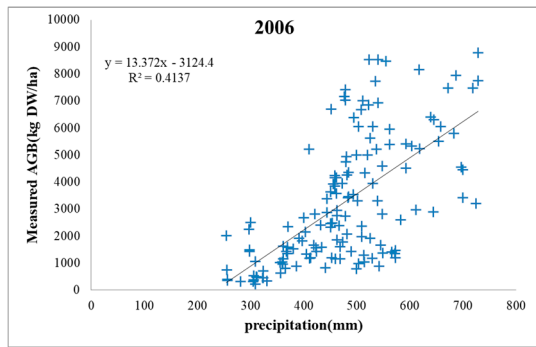
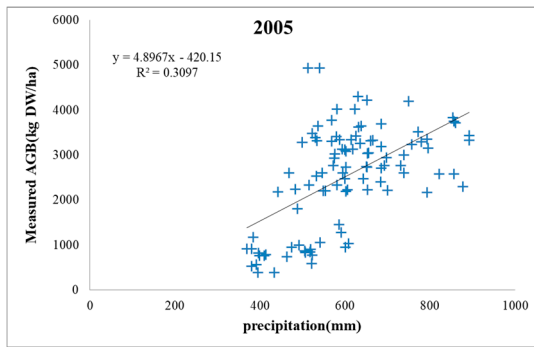


Figure S2. Flowchart illustrating the methodological steps undertaken to achieve the MODIS data processing in this study.



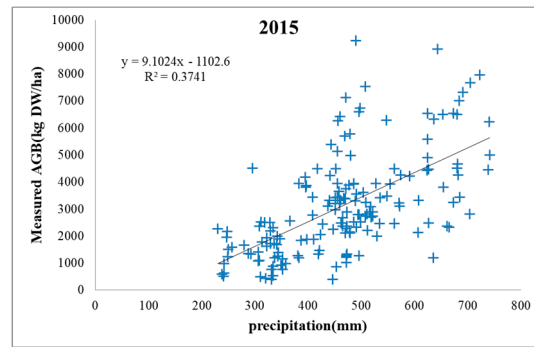


Figure S3. Correlation between grassland AGB and precipitation.

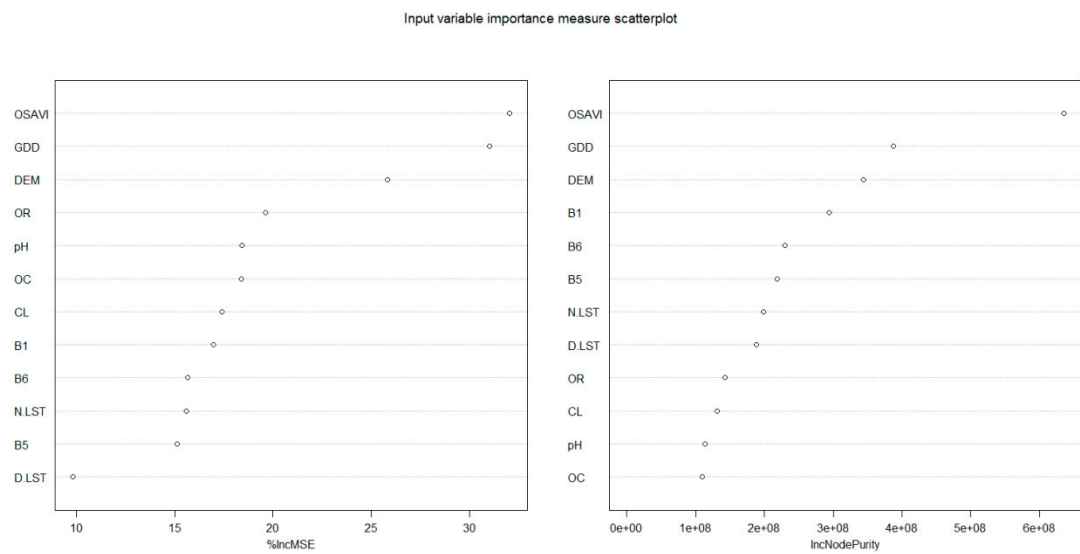


Figure S4. Input variable importance measure scatterplot.

Table S1. Research site information.

latitude	longitude	county	the species of grassland	the organic carbon stock (t/ha)	clay content (%)	sand content (%)
100.9443	35.39181	zeku	Stipa type	18	21	31
98.14411	34.94986	maduo	Stipa type	34	17	56
98.15	34.91667	maduo	Stipa type	32	17	54
97.91536	35.07503	maduo	Stipa type	33	17	54
97.78075	35.10983	maduo	Stipa type	34	18	54
98.25994	34.59783	maduo	Stipa type	43	17	55
100.9142	35.39169	zeku	Stipa type	26	18	44
101.1533	35.30397	zeku	Stipa type	20	19	35
97.60022	34.97658	maduo	Stipa type	32	19	48
97.91536	35.07503	maduo	Stipa type	33	17	54
100.9142	35.39169	zeku	Stipa type	26	18	44
100.9443	35.39181	zeku	Stipa type	18	21	31
101.8688	35.21619	zeku	Stipa type	25	17	42
98.14411	34.94986	maduo	Stipa type	34	17	56
98.14411	34.94986	maduo	Stipa type	34	17	56
97.78075	35.10983	maduo	Stipa type	34	18	54
98.26006	34.59789	maduo	Stipa type	43	17	55
98.14411	34.94986	maduo	Stipa type	28	17	51
97.60022	34.97658	maduo	Stipa type	32	19	48
100.9142	35.39169	zeku	Stipa type	26	18	44
100.9443	35.39181	zeku	Stipa type	18	21	31
97.60022	34.97658	maduo	Stipa type	32	19	48
98.26006	34.59789	maduo	Stipa type	43	17	55
97.78075	35.10983	maduo	Stipa type	34	18	54
100.9142	35.39169	zeku	Stipa type	43	20	46
101.1529	35.30389	zeku	Stipa type	20	19	35
98.14411	34.94986	maduo	Stipa type	34	17	56
98.16125	34.89928	maduo	Stipa type	28	17	51
98.14411	34.94986	maduo	Stipa type	15	16	59
100.9142	35.39169	zeku	Stipa type	26	18	38
101.1529	35.30389	zeku	Stipa type	20	19	46
98.14411	34.94986	maduo	Stipa type	34	17	27
97.60022	34.97658	maduo	Stipa type	32	19	33
98.26014	34.59792	maduo	Stipa type	43	17	28
97.78075	35.10983	maduo	Stipa type	34	18	28
100.9142	35.39169	zeku	Stipa type	22	14	45
100.9395	35.39186	zeku	Stipa type	18	21	47
98.16122	34.89928	maduo	Stipa type	28	17	32

97.93044	35.11294	maduo	Stipa type	27	18	27
100.9142	35.39169	zeku	Stipa type	26	18	44
100.9395	35.39186	zeku	Stipa type	18	21	32
101.1529	35.30389	zeku	Stipa type	20	19	35
98.14411	34.94986	maduo	Stipa type	34	17	56
98.16122	34.89928	maduo	Stipa type	28	17	51
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101.1529	35.30389	zeku	Stipa type	20	19	35
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95.715	34.2965	qumalai	Stipa purpurea, weeds	22	18	45
92.45758	34.19031	geermu	Stipa purpurea, weeds	35	15	58
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97.77308	35.11289	maduo	Stipa purpurea, weeds	32	17	55
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95.36436	34.53969	qumalai	Stipa purpurea, weeds	36	18	54
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95.34753	34.55267	qumalai	Stipa purpurea, weeds	35	18	53
95.36436	34.53969	qumalai	Stipa purpurea, weeds	36	18	54

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92.52928	34.22322	geermu	Stipa purpurea, weeds	31	13	57
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95.36297	34.54394	qumalai	Stipa purpurea, weeds	34	18	54
102.3087	35.49506	tongren	Stipa purpurea, weeds	46	20	33
101.9082	36.02006	jianzha	Stipa purpurea, weeds	16	20	39
102.0951	35.61711	tongren	Stipa purpurea, weeds	6	19	44
98.27017	34.86236	maduo	weeds	33	16	54
96.39028	32.22264	nangqian	weeds	19	22	39
96.39047	32.22267	nangqian	weeds	19	22	39
96.39028	32.20597	nangqian	weeds	23	24	37
96.39047	32.22267	nangqian	weeds	19	22	40
101.3001	34.57553	henan	weeds	25	21	41
96.39028	32.20597	nangqian	weeds	23	24	38
101.3001	34.57553	henan	weeds	25	21	39
96.39047	32.22267	nangqian	weeds	19	22	39
96.39028	32.20597	nangqian	weeds	23	24	37
101.3001	34.57553	henan	weeds	25	21	39
101.3001	34.57553	henan	weeds	25	21	39
101.3001	34.57553	henan	weeds	25	21	39
101.3001	34.57553	henan	weeds	25	21	39
101.1477	34.48297	henan	Line-leaf turmeric	27	20	40
95.36717	32.5865	zaduo	Line-leaf turmeric	30	20	49
101.3001	34.62144	henan	Line-leaf turmeric	43	22	45
101.5082	33.30869	jiuzhi	Line-leaf turmeric	39	20	49
98.96917	33.68694	dari	Line-leaf turmeric	48	18	54
96.77	33.10139	yushu	Line-leaf turmeric	41	21	50
95.36717	32.5865	zaduo	Line-leaf turmeric	30	20	49
101.1235	34.45589	henan	Line-leaf turmeric	42	22	45

101.3833	34.3	henan	Line-leaf turmeric	27	22	32
101.5302	34.83353	henan	Line-leaf turmeric	28	18	42
100.9497	33.36225	jiuzhi	Line-leaf turmeric	48	20	49
100.9497	33.36225	jiuzhi	Line-leaf turmeric	48	20	49
101.3833	34.3	henan	Line-leaf turmeric	27	22	32
101.55	34.63333	henan	Line-leaf turmeric	20	24	25
101.5082	33.30869	jiuzhi	Line-leaf turmeric	39	20	49
98.96917	33.68694	dari	Line-leaf turmeric	48	18	54
96.76861	33.10139	yushu	Line-leaf turmeric	40	21	49
95.36717	32.5865	zaduo	Line-leaf turmeric	30	20	49
101.1235	34.45589	henan	Line-leaf turmeric	42	22	45
101.3001	34.62144	henan	Line-leaf turmeric	43	22	45
101.8833	34.55	henan	Line-leaf turmeric	31	19	40
101.3833	34.3	henan	Line-leaf turmeric	27	22	46
101.5302	34.83353	henan	Line-leaf turmeric	28	18	40
101.5971	34.69983	henan	Line-leaf turmeric	18	21	48
101.5966	34.70006	henan	Line-leaf turmeric	18	21	48
101.5082	33.30869	jiuzhi	Line-leaf turmeric	39	20	31
100.9497	33.36225	jiuzhi	Line-leaf turmeric	48	20	30
101.3849	34.30553	henan	Line-leaf turmeric	19	22	50
101.1488	34.48019	henan	Line-leaf turmeric	26	20	40
96.76861	33.10139	yushu	Line-leaf turmeric	40	21	30
95.36717	32.5865	zaduo	Line-leaf turmeric	30	20	31
95.36717	32.5865	zaduo	Line-leaf turmeric	33	20	51
101.3849	34.30553	henan	Line-leaf turmeric	19	22	28
101.1488	34.48019	henan	Line-leaf turmeric	26	20	40
101.5302	34.83353	henan	Line-leaf turmeric	28	18	42
101.5971	34.69983	henan	Line-leaf turmeric	18	21	30
101.5082	33.30869	jiuzhi	Line-leaf turmeric	39	20	49
100.9497	33.36225	jiuzhi	Line-leaf turmeric	48	20	49
95.36717	32.5865	zaduo	Line-leaf turmeric	30	20	49
101.3833	34.3	henan	Line-leaf turmeric	27	22	32
101.5966	34.70006	henan	Line-leaf turmeric	18	21	30
101.3833	34.3	henan	Line-leaf turmeric	27	22	32
99.82975	34.59606	maqin	Line-leaf turmeric	58	21	46
101.3001	34.62144	henan	Line-leaf turmeric	43	22	45
101.5966	34.70006	henan	Line-leaf turmeric	18	21	30
101.5082	33.30869	jiuzhi	Line-leaf turmeric	39	20	49
95.36717	32.5865	zaduo	Line-leaf turmeric	30	20	49
100.9497	33.36225	jiuzhi	Line-leaf turmeric	22	14	45
101.3849	34.30553	henan	Line-leaf turmeric	19	22	28
101.1488	34.48019	henan	Line-leaf turmeric	26	20	40
101.5302	34.83353	henan	Line-leaf turmeric	28	18	42
101.5971	34.69983	henan	Line-leaf turmeric	18	21	30

100.9497	33.36225	jiuzhi	Line-leaf turmeric	48	20	49
101.3849	34.30553	henan	Line-leaf turmeric	19	22	28
101.1488	34.48019	henan	Line-leaf turmeric	26	20	40
101.5971	34.69983	henan	Line-leaf turmeric	18	21	30
101.5966	34.70006	henan	Line-leaf turmeric	18	21	30
101.5082	33.30869	jiuzhi	Line-leaf turmeric	39	20	49
101.3833	34.3	henan	Line-leaf turmeric	27	22	32
101.5302	34.83353	henan	Line-leaf turmeric	28	18	42
96.76861	33.10139	yushu	Line-leaf turmeric	40	21	49
95.36717	32.5865	zaduo	Line-leaf turmeric	30	20	49
101.3833	34.3	henan	Line-leaf turmeric	25	15	42
101.3849	34.30553	henan	Line-leaf turmeric	19	22	28
101.1488	34.48019	henan	Line-leaf turmeric	26	20	40
101.3833	34.3	henan	Line-leaf turmeric	27	22	32
101.5971	34.69983	henan	Line-leaf turmeric	18	21	30
101.5966	34.70006	henan	Line-leaf turmeric	18	21	30
101.5082	33.30869	jiuzhi	Line-leaf turmeric	39	20	49
100.9497	33.36225	jiuzhi	Line-leaf turmeric	48	20	49
96.76861	33.10139	yushu	Line-leaf turmeric	40	21	49
95.36717	32.5865	zaduo	Line-leaf turmeric	30	20	49
101.5082	33.30869	jiuzhi	Line-leaf turmeric	39	20	49
101.3001	34.62144	henan	Line-leaf turmeric	43	22	45
100.9497	33.36225	jiuzhi	Line-leaf turmeric	48	20	49
101.3849	34.30553	henan	Line-leaf turmeric	19	22	28
101.3833	34.3	henan	Line-leaf turmeric	27	22	32
101.1488	34.48019	henan	Line-leaf turmeric	26	20	40
101.3001	34.62144	henan	Line-leaf turmeric	43	22	45
95.36717	32.5865	zaduo	Line-leaf turmeric	30	20	49
101.5082	33.30869	jiuzhi	Line-leaf turmeric	39	20	49
100.9497	33.36225	jiuzhi	Line-leaf turmeric	48	20	49
96.76861	33.10139	yushu	Line-leaf turmeric	40	21	49
95.36717	32.5865	zaduo	Line-leaf turmeric	30	20	49
101.3849	34.30553	henan	Line-leaf turmeric	19	22	28
101.1488	34.48019	henan	Line-leaf turmeric	26	20	40
101.3833	34.3	henan	Line-leaf turmeric	27	22	32
101.3001	34.62144	henan	Line-leaf turmeric	43	22	45
101.5971	34.69983	henan	Line-leaf turmeric	18	21	30
101.5961	34.70056	henan	Line-leaf turmeric	18	21	30
101.5082	33.30869	jiuzhi	Line-leaf turmeric	39	20	49
96.76861	33.10139	yushu	Line-leaf turmeric	40	21	49
100.9497	33.36225	jiuzhi	Line-leaf turmeric	48	20	49
95.36717	32.5865	zaduo	Line-leaf turmeric	30	20	49
101.0608	33.56458	jiuzhi	Corydalis serrata, Polygonum bulbifera	34	20	41
95.44703	32.84797	zaduo	Corydalis serrata, Polygonum bulbifera	38	23	48

100.558	32.68258	banma	Corydalis serrata, Polygonum bulbifera	36	17	45
101.061	33.55711	jiuzhi	Corydalis serrata, Polygonum bulbifera	35	21	45
101.061	33.55711	jiuzhi	Corydalis serrata, Polygonum bulbifera	33	19	42
101.061	33.55711	jiuzhi	Corydalis serrata, Polygonum bulbifera	33	19	42
100.558	32.68258	banma	Corydalis serrata, Polygonum bulbifera	36	17	45
101.061	33.55711	jiuzhi	Corydalis serrata, Polygonum bulbifera	33	19	39
100.558	32.68258	banma	Corydalis serrata, Polygonum bulbifera	36	17	38
101.061	33.55711	jiuzhi	Corydalis serrata, Polygonum bulbifera	33	19	42
100.558	32.68258	banma	Corydalis serrata, Polygonum bulbifera	36	17	45
101.061	33.55711	jiuzhi	Corydalis serrata, Polygonum bulbifera	33	19	42
100.558	32.68258	banma	Corydalis serrata, Polygonum bulbifera	36	17	45
101.061	33.55711	jiuzhi	Corydalis serrata, Polygonum bulbifera	33	19	42
100.558	32.68258	banma	Corydalis serrata, Polygonum bulbifera	36	17	45
100.558	32.68258	banma	Corydalis serrata, Polygonum bulbifera	36	17	45
100.558	32.68258	banma	Corydalis serrata, Polygonum bulbifera	36	17	45
101.061	33.55711	jiuzhi	Corydalis serrata, Polygonum bulbifera	33	19	42
100.558	32.68258	banma	Corydalis serrata, Polygonum bulbifera	36	17	45
100.558	32.68258	banma	Corydalis serrata, Polygonum bulbifera	36	17	45
99.59203	33.89006	gande	Line-leaf turmeric, bluegrass	45	20	46
99.59281	33.89006	gande	Line-leaf turmeric, bluegrass	45	20	46
99.60469	33.76217	gande	Line-leaf turmeric, bluegrass	18	19	35
99.81692	33.80586	gande	Line-leaf turmeric, bluegrass	44	20	48
99.60469	33.76217	gande	Line-leaf turmeric, bluegrass	18	19	35
99.81692	33.80586	gande	Line-leaf turmeric, bluegrass	44	20	32
99.59203	33.89006	gande	Line-leaf turmeric, bluegrass	45	20	33
99.60469	33.76217	gande	Line-leaf turmeric, bluegrass	18	19	46
99.81692	33.80586	gande	Line-leaf turmeric, bluegrass	21	17	43
99.81692	33.80586	gande	Line-leaf turmeric, bluegrass	44	20	48
99.59	33.89261	gande	Line-leaf turmeric, bluegrass	46	20	47
99.59203	33.89006	gande	Line-leaf turmeric, bluegrass	45	20	46
99.81692	33.80586	gande	Line-leaf turmeric, bluegrass	44	20	48
99.59	33.89261	gande	Line-leaf turmeric, bluegrass	46	20	47
99.59203	33.89006	gande	Line-leaf turmeric, bluegrass	45	20	46
99.60469	33.76217	gande	Line-leaf turmeric, bluegrass	18	19	35
99.59203	33.89006	gande	Line-leaf turmeric, bluegrass	45	20	46
99.81692	33.80586	gande	Line-leaf turmeric, bluegrass	44	20	48
99.59	33.89261	gande	Line-leaf turmeric, bluegrass	46	20	47
99.59	33.89261	gande	Line-leaf turmeric, bluegrass	46	20	47
99.59203	33.89006	gande	Line-leaf turmeric, bluegrass	45	20	46
99.81692	33.80586	gande	Line-leaf turmeric, bluegrass	44	20	48
99.59203	33.89006	gande	Line-leaf turmeric, bluegrass	45	20	46
99.81692	33.80586	gande	Line-leaf turmeric, bluegrass	44	20	48
99.59	33.89261	gande	Line-leaf turmeric, bluegrass	46	20	47
99.60469	33.76217	gande	Line-leaf turmeric, bluegrass	18	19	35

99.81692	33.80586	gande	Line-leaf turmeric, bluegrass	44	20	48
99.59	33.89261	gande	Line-leaf turmeric, bluegrass	46	20	47
99.59203	33.89006	gande	Line-leaf turmeric, bluegrass	45	20	46
99.60469	33.76217	gande	Line-leaf turmeric, bluegrass	18	19	35
101.9282	35.78537	jianzha	Line-leaf turmeric, bluegrass	29	20	41
99.81692	33.80586	gande	Line-leaf turmeric, bluegrass	44	20	48
99.59	33.89261	gande	Line-leaf turmeric, bluegrass	46	20	47
99.61125	33.76242	gande	Line-leaf turmeric, bluegrass	17	19	36
99.60469	33.76217	gande	Line-leaf turmeric, bluegrass	18	19	35
96.49467	32.07769	nangqian	Lineleaf, weeds	20	21	41
96.49467	32.07769	nangqian	Lineleaf, weeds	36	19	29
100.8303	34.87847	tongde	Lineleaf, weeds	43	21	49
96.49467	32.07769	nangqian	Lineleaf, weeds	20	21	41
100.7331	34.64192	maqin	Lineleaf, weeds	37	20	47
100.7331	34.64192	maqin	Lineleaf, weeds	37	20	47
96.49467	32.07769	nangqian	Lineleaf, weeds	20	21	41
100.7331	34.64192	maqin	Lineleaf, weeds	37	20	33
100.8254	34.87339	tongde	Lineleaf, weeds	41	21	32
100.7441	34.97256	tongde	Lineleaf, weeds	35	21	34
100.8466	34.96017	tongde	Lineleaf, weeds	35	19	29
96.49467	32.07769	nangqian	Lineleaf, weeds	20	21	38
100.8466	34.96017	tongde	Lineleaf, weeds	35	19	53
96.49467	32.07769	nangqian	Lineleaf, weeds	20	21	41
100.8254	34.87339	tongde	Lineleaf, weeds	41	21	47
100.7441	34.97256	tongde	Lineleaf, weeds	35	21	45
100.7331	34.64192	maqin	Lineleaf, weeds	37	20	47
100.8254	34.87339	tongde	Lineleaf, weeds	41	21	47
100.8466	34.96017	tongde	Lineleaf, weeds	35	19	53
96.49467	32.07769	nangqian	Lineleaf, weeds	20	21	41
100.7441	34.97256	tongde	Lineleaf, weeds	35	21	45
100.7331	34.64192	maqin	Lineleaf, weeds	37	20	47
100.8466	34.96017	tongde	Lineleaf, weeds	35	19	53
96.49467	32.07769	nangqian	Lineleaf, weeds	20	21	41
100.7331	34.64192	maqin	Lineleaf, weeds	37	20	47
100.8254	34.87339	tongde	Lineleaf, weeds	41	21	47
100.7331	34.64192	maqin	Lineleaf, weeds	37	20	47
100.8254	34.87339	tongde	Lineleaf, weeds	41	21	47
100.7441	34.97256	tongde	Lineleaf, weeds	35	21	45
96.49467	32.07769	nangqian	Lineleaf, weeds	20	21	41
100.7441	34.97256	tongde	Lineleaf, weeds	35	21	45
100.8466	34.96017	tongde	Lineleaf, weeds	35	19	53
96.49467	32.07769	nangqian	Lineleaf, weeds	20	21	41
100.8254	34.87339	tongde	Lineleaf, weeds	41	21	47
100.7331	34.64192	maqin	Lineleaf, weeds	37	20	47

100.8466	34.96017	tongde	Lineleaf, weeds	35	19	53
96.49467	32.07769	nangqian	Lineleaf, weeds	20	21	41
100.7331	34.64192	maqin	Lineleaf, weeds	18	15	46
101.8558	34.59461	henan	Lineleaf, weeds	26	18	44
100.7331	34.64192	maqin	Lineleaf, weeds	37	20	47
100.8254	34.87339	tongde	Lineleaf, weeds	41	21	47
100.7441	34.97256	tongde	Lineleaf, weeds	35	21	45
100.8466	34.96017	tongde	Lineleaf, weeds	35	19	53
96.49467	32.07769	nangqian	Lineleaf, weeds	20	21	41
101.0758	36.22056	guide	Northwest Stipa type, Stipa brevis type	16	21	47
100.7885	35.28444	tongde	Northwest stipa, lichen type	18	17	42
100.5754	35.18953	tongde	Northwest stipa, lichen type	20	21	44
100.5354	35.30361	tongde	Northwest stipa, lichen type	21	17	43
100.5232	35.22511	tongde	Northwest stipa, lichen type	18	20	48
100.4558	35.18947	tongde	Northwest stipa, lichen type	18	20	46
100.7885	35.28444	tongde	Northwest stipa, lichen type	18	17	42
100.4558	35.18947	tongde	Northwest stipa, lichen type	18	20	46
100.5754	35.18953	tongde	Northwest stipa, lichen type	20	21	44
100.5354	35.30361	tongde	Northwest stipa, lichen type	21	17	43
100.5232	35.22511	tongde	Northwest stipa, lichen type	18	20	48
100.4558	35.18947	tongde	Northwest stipa, lichen type	30	19	52
100.7885	35.28444	tongde	Northwest stipa, lichen type	18	17	42
100.5232	35.22511	tongde	Northwest stipa, lichen type	18	20	48
100.4558	35.18947	tongde	Northwest stipa, lichen type	18	20	46
100.5754	35.18953	tongde	Northwest stipa, lichen type	20	21	44
100.5195	35.30347	tongde	Northwest stipa, lichen type	20	18	41
100.5754	35.18953	tongde	Northwest stipa, lichen type	25	21	39
100.5232	35.22511	tongde	Northwest stipa, lichen type	18	20	31
100.4604	35.19172	tongde	Northwest stipa, lichen type	18	20	34
100.5814	35.19306	tongde	Northwest stipa, lichen type	20	20	35
100.5195	35.30347	tongde	Northwest stipa, lichen type	20	18	41
100.4901	35.31389	tongde	Northwest stipa, lichen type	19	21	31
100.7875	35.29378	tongde	Northwest stipa, lichen type	16	18	38
100.7875	35.29378	tongde	Northwest stipa, lichen type	16	18	44
100.5195	35.30347	tongde	Northwest stipa, lichen type	20	18	41
100.4901	35.31389	tongde	Northwest stipa, lichen type	19	21	49
100.5232	35.22511	tongde	Northwest stipa, lichen type	18	20	48
100.4604	35.19172	tongde	Northwest stipa, lichen type	18	20	46
100.5814	35.19306	tongde	Northwest stipa, lichen type	20	20	45
100.7875	35.29378	tongde	Northwest stipa, lichen type	16	18	44
100.4604	35.19172	tongde	Northwest stipa, lichen type	18	20	46
100.5814	35.19306	tongde	Northwest stipa, lichen type	20	20	45
100.4901	35.31389	tongde	Northwest stipa, lichen type	19	21	49
100.5232	35.22511	tongde	Northwest stipa, lichen type	18	20	48

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100.3918	35.21342	tongde	Northwest Stipa, Qinghai sand-fixing grass type	23	19	41
100.3918	35.21342	tongde	Northwest Stipa, Qinghai sand-fixing grass type	24	17	46
100.3918	35.21342	tongde	Northwest Stipa, Qinghai sand-fixing grass type	37	16	60
100.034	36.63711	gonghe	Northwest stipa, dwarf grass type	34	18	54
101.4625	35.85847	guide	Qinghai sand-fixing grass and northwest stipa	20	19	42
100.7945	32.78942	banma	Moss grass and sage grass type with Xianbei flowers	20	22	48
100.7945	32.78942	banma	Moss grass and sage grass type with Xianbei flowers	20	22	48
100.7945	32.78942	banma	Moss grass and sage grass type with Xianbei flowers	20	22	48
100.7945	32.78942	banma	Moss grass and sage grass type with Xianbei flowers	20	22	30
100.7945	32.78942	banma	Moss grass and sage grass type with Xianbei flowers	20	22	48
100.7945	32.78942	banma	Moss grass and sage grass type with Xianbei flowers	20	22	48
100.7945	32.78942	banma	Moss grass and sage grass type with Xianbei flowers	20	22	48
100.7945	32.78942	banma	Moss grass and sage grass type with Xianbei flowers	20	22	48
100.7945	32.78942	banma	Moss grass and sage grass type with Xianbei flowers	20	22	48
100.7945	32.78942	banma	Moss grass and sage grass type with Xianbei flowers	20	22	48
100.7945	32.78942	banma	Moss grass and sage grass type with Xianbei flowers	20	22	48
100.7945	32.78942	banma	Moss grass and sage grass type with Xianbei flowers	20	22	48
102.2353	35.41893	tongren	Polygonum bulbifera type with golden dew plum	22	23	41
101.2356	33.38028	jiuzhi	Polygonum bulbifera type with golden dew plum	25	12	49
101.4228	34.675	henan	Sorrel and moss type with golden dew plum	18	23	28
101.1235	34.45589	henan	Sorrel and moss type with golden dew plum	42	22	45
101.4228	34.675	henan	Sorrel and moss type with golden dew plum	18	23	28
101.4228	34.675	henan	Sorrel and moss type with golden dew plum	18	23	28
101.4232	34.68514	henan	Sorrel and moss type with golden dew plum	19	21	49
101.1235	34.45589	henan	Sorrel and moss type with golden dew plum	42	22	33
101.1235	34.45589	henan	Sorrel and moss type with golden dew plum	42	22	45
101.4232	34.68514	henan	Sorrel and moss type with golden dew plum	19	21	30
101.4232	34.68514	henan	Sorrel and moss type with golden dew plum	19	21	30
101.4232	34.68514	henan	Sorrel and moss type with golden dew plum	19	21	30
101.1235	34.45589	henan	Sorrel and moss type with golden dew plum	42	22	45
101.1235	34.45589	henan	Sorrel and moss type with golden dew plum	42	22	45
101.4232	34.68514	henan	Sorrel and moss type with golden dew plum	19	21	30
101.4232	34.68514	henan	Sorrel and moss type with golden dew plum	19	21	30
101.1235	34.45589	henan	Sorrel and moss type with golden dew plum	42	22	45
101.4232	34.68514	henan	Sorrel and moss type with golden dew plum	19	21	30
101.1235	34.45589	henan	Sorrel and moss type with golden dew plum	42	22	45
100.3222	34.37394	maqin	Sorrel and moss type with golden dew plum	26	17	41
100.6887	32.92472	banma	Moss grass, sage grass type with alpine willow	24	17	42
100.6887	32.92472	banma	Moss grass, sage grass type with alpine willow	24	17	42
99.81692	33.80586	gande	Moss grass, sage grass type with alpine willow	44	20	48
100.6887	32.92472	banma	Moss grass, sage grass type with alpine willow	24	17	42
100.6887	32.92472	banma	Moss grass, sage grass type with alpine willow	24	17	42
100.6887	32.92472	banma	Moss grass, sage grass type with alpine willow	24	17	41
100.6887	32.92472	banma	Moss grass, sage grass type with alpine willow	24	17	42
100.6887	32.92472	banma	Moss grass, sage grass type with alpine willow	24	17	42

100.6887	32.92472	banma	Moss grass, sage grass type with alpine willow	24	17	42
100.6887	32.92472	banma	Moss grass, sage grass type with alpine willow	24	17	42
100.6887	32.92472	banma	Moss grass, sage grass type with alpine willow	24	17	42
100.6887	32.92472	banma	Moss grass, sage grass type with alpine willow	24	17	42
100.6486	35.5105	guinan	Achnatherum splendens, Qinghai sand-fixing grass type	25	21	37
100.7299	32.90175	banma	Wo Ye Song grass type	24	17	42
100.8609	33.28719	jiuzhi	Wo Ye Song grass type	39	21	47
101.1386	33.44225	jiuzhi	Wo Ye Song grass type	23	17	42
100.5076	33.34017	jiuzhi	Wo Ye Song grass type	25	15	42
100.0631	33.00636	banma	Wo Ye Song grass type	45	19	48
101.0583	32.99406	banma	Wo Ye Song grass type	49	14	59
100.0971	32.98867	banma	Wo Ye Song grass type	37	20	49
100.8558	32.81256	banma	Wo Ye Song grass type	27	20	42
101.4288	33.40981	jiuzhi	Wo Ye Song grass type	44	19	52
101.5082	33.30869	jiuzhi	Wo Ye Song grass type	39	20	49
100.9889	33.44444	jiuzhi	Wo Ye Song grass type	48	20	50
100.7299	32.90175	banma	Wo Ye Song grass type	24	17	42
100.0631	33.00636	banma	Wo Ye Song grass type	45	19	48
100.0582	32.99597	banma	Wo Ye Song grass type	44	21	47
100.5076	33.34017	jiuzhi	Wo Ye Song grass type	25	15	42
100.8609	33.28719	jiuzhi	Wo Ye Song grass type	39	21	47
101.1386	33.44225	jiuzhi	Wo Ye Song grass type	23	17	42
100.9758	33.43164	jiuzhi	Wo Ye Song grass type	53	21	47
100.0631	33.00636	banma	Wo Ye Song grass type	45	19	48
100.8671	32.82583	banma	Wo Ye Song grass type	23	21	46
101.4288	33.40981	jiuzhi	Wo Ye Song grass type	44	19	52
100.9889	33.44444	jiuzhi	Wo Ye Song grass type	48	20	50
101.6023	33.29964	jiuzhi	Wo Ye Song grass type	36	22	47
101.0601	32.99475	banma	Wo Ye Song grass type	53	14	59
100.0971	32.98867	banma	Wo Ye Song grass type	37	20	49
100.7299	32.90175	banma	Wo Ye Song grass type	24	17	42
100.0631	33.00636	banma	Wo Ye Song grass type	45	19	48
101.0582	32.99597	banma	Wo Ye Song grass type	49	14	59
101.4288	33.40981	jiuzhi	Wo Ye Song grass type	44	19	52
100.9758	33.43164	jiuzhi	Wo Ye Song grass type	53	21	47
100.0631	33.00636	banma	Wo Ye Song grass type	45	19	48
101.0601	32.99475	banma	Wo Ye Song grass type	53	14	59
100.8671	32.82583	banma	Wo Ye Song grass type	23	21	46
100.0631	33.00636	banma	Wo Ye Song grass type	45	19	48
100.0971	32.98867	banma	Wo Ye Song grass type	40	21	49
100.5076	33.34017	jiuzhi	Wo Ye Song grass type	25	15	42
100.8609	33.28719	jiuzhi	Wo Ye Song grass type	39	21	47
101.1386	33.44225	jiuzhi	Wo Ye Song grass type	23	17	42

100.9889	33.44444	jiuzhi	Wo Ye Song grass type	48	20	50
101.6023	33.29964	jiuzhi	Wo Ye Song grass type	36	22	47
100.0971	32.98867	banma	Wo Ye Song grass type	37	20	49
100.8609	33.28719	jiuzhi	Wo Ye Song grass type	43	22	45
100.7299	32.90175	banma	Wo Ye Song grass type	24	17	42
100.0631	33.00636	banma	Wo Ye Song grass type	45	19	48
100.0625	33.00883	banma	Wo Ye Song grass type	45	19	32
101.4288	33.40981	jiuzhi	Wo Ye Song grass type	44	19	29
100.5076	33.34017	jiuzhi	Wo Ye Song grass type	25	15	42
100.8609	33.28719	jiuzhi	Wo Ye Song grass type	39	21	31
101.1386	33.44225	jiuzhi	Wo Ye Song grass type	23	17	41
100.9758	33.43164	jiuzhi	Wo Ye Song grass type	53	21	33
101.6023	33.29964	jiuzhi	Wo Ye Song grass type	36	22	31
101.0601	32.99475	banma	Wo Ye Song grass type	53	14	27
100.0971	32.98867	banma	Wo Ye Song grass type	37	20	31
100.7299	32.90175	banma	Wo Ye Song grass type	24	17	41
101.0582	32.99597	banma	Wo Ye Song grass type	49	14	27
100.9889	33.44444	jiuzhi	Wo Ye Song grass type	48	20	31
100.0631	33.00636	banma	Wo Ye Song grass type	45	19	32
100.8671	32.82583	banma	Wo Ye Song grass type	23	21	34
100.7299	32.90175	banma	Wo Ye Song grass type	37	20	47
100.7299	32.90175	banma	Wo Ye Song grass type	24	17	42
100.0625	33.00883	banma	Wo Ye Song grass type	45	19	48
101.0582	32.99597	banma	Wo Ye Song grass type	49	14	59
100.8606	33.28694	jiuzhi	Wo Ye Song grass type	38	21	46
101.1386	33.44225	jiuzhi	Wo Ye Song grass type	23	17	42
100.9889	33.44444	jiuzhi	Wo Ye Song grass type	48	20	50
101.6023	33.29964	jiuzhi	Wo Ye Song grass type	36	22	47
100.0631	33.00636	banma	Wo Ye Song grass type	45	19	48
101.0601	32.99475	banma	Wo Ye Song grass type	53	14	59
100.0971	32.98867	banma	Wo Ye Song grass type	37	20	49
100.8671	32.82583	banma	Wo Ye Song grass type	23	21	46
101.4288	33.40981	jiuzhi	Wo Ye Song grass type	44	19	52
100.9758	33.43164	jiuzhi	Wo Ye Song grass type	53	21	47
100.0625	33.00883	banma	Wo Ye Song grass type	45	19	48
101.4288	33.40981	jiuzhi	Wo Ye Song grass type	44	19	52
100.5076	33.34017	jiuzhi	Wo Ye Song grass type	25	15	42
100.9889	33.44444	jiuzhi	Wo Ye Song grass type	48	20	50
101.6023	33.29964	jiuzhi	Wo Ye Song grass type	36	22	47
101.0601	32.99475	banma	Wo Ye Song grass type	53	14	59
100.8671	32.82583	banma	Wo Ye Song grass type	23	21	46
100.7299	32.90175	banma	Wo Ye Song grass type	24	17	42
101.0582	32.99597	banma	Wo Ye Song grass type	49	14	59
101.1386	33.44225	jiuzhi	Wo Ye Song grass type	23	17	42

100.9758	33.43164	jiuzhi	Wo Ye Song grass type	53	21	47
100.0631	33.00636	banma	Wo Ye Song grass type	45	19	48
100.0971	32.98867	banma	Wo Ye Song grass type	37	20	49
100.0971	32.98867	banma	Wo Ye Song grass type	48	18	54
101.0582	32.99597	banma	Wo Ye Song grass type	49	14	59
100.8609	33.28719	jiuzhi	Wo Ye Song grass type	39	21	47
101.1386	33.44225	jiuzhi	Wo Ye Song grass type	23	17	42
100.9889	33.44444	jiuzhi	Wo Ye Song grass type	48	20	50
101.6018	33.30031	jiuzhi	Wo Ye Song grass type	36	22	47
101.6023	33.29964	jiuzhi	Wo Ye Song grass type	36	22	47
100.9497	33.36225	jiuzhi	Wo Ye Song grass type	48	20	49
101.0601	32.99475	banma	Wo Ye Song grass type	53	14	59
100.8671	32.82583	banma	Wo Ye Song grass type	23	21	46
100.9497	33.36225	jiuzhi	Wo Ye Song grass type	27	17	46
100.8671	32.82583	banma	Wo Ye Song grass type	44	20	47
101.4288	33.40981	jiuzhi	Wo Ye Song grass type	44	19	52
100.5076	33.34017	jiuzhi	Wo Ye Song grass type	25	15	42
100.9758	33.43164	jiuzhi	Wo Ye Song grass type	53	21	47
100.0971	32.98867	banma	Wo Ye Song grass type	37	20	49
100.7299	32.90175	banma	Wo Ye Song grass type	24	17	42
101.0582	32.99597	banma	Wo Ye Song grass type	49	14	59
101.4288	33.40981	jiuzhi	Wo Ye Song grass type	44	19	52
100.5076	33.34017	jiuzhi	Wo Ye Song grass type	25	15	42
100.8606	33.28694	jiuzhi	Wo Ye Song grass type	38	21	46
101.1386	33.44225	jiuzhi	Wo Ye Song grass type	23	17	42
101.6018	33.30031	jiuzhi	Wo Ye Song grass type	36	22	47
101.6023	33.29964	jiuzhi	Wo Ye Song grass type	36	22	47
100.0971	32.98867	banma	Wo Ye Song grass type	37	20	49
100.8671	32.82583	banma	Wo Ye Song grass type	23	21	46
100.5076	33.34017	jiuzhi	Wo Ye Song grass type	25	15	42
100.8606	33.28694	jiuzhi	Wo Ye Song grass type	38	21	46
100.9889	33.44444	jiuzhi	Wo Ye Song grass type	48	20	50
100.9758	33.43164	jiuzhi	Wo Ye Song grass type	53	21	47
101.6018	33.30031	jiuzhi	Wo Ye Song grass type	36	22	47
101.6023	33.29964	jiuzhi	Wo Ye Song grass type	36	22	47
100.0625	33.00883	banma	Wo Ye Song grass type	45	19	48
100.9889	33.44444	jiuzhi	Wo Ye Song grass type	48	20	50
100.9758	33.43164	jiuzhi	Wo Ye Song grass type	53	21	47
100.0631	33.00636	banma	Wo Ye Song grass type	45	19	48
101.0601	32.99475	banma	Wo Ye Song grass type	53	14	59
101.4288	33.40981	jiuzhi	Wo Ye Song grass type	44	19	52
101.1386	33.44225	jiuzhi	Wo Ye Song grass type	23	17	42
100.7299	32.90175	banma	Wo Ye Song grass type	24	17	42
100.0625	33.00883	banma	Wo Ye Song grass type	45	19	48

101.0582	32.99597	banma	Wo Ye Song grass type	49	14	59
101.0601	32.99475	banma	Wo Ye Song grass type	53	14	59
100.0971	32.98867	banma	Wo Ye Song grass type	37	20	49
100.8671	32.82583	banma	Wo Ye Song grass type	23	21	46
100.0631	33.00636	banma	Wo Ye Song grass type	20	18	41
100.7299	32.90175	banma	Wo Ye Song grass type	24	17	42
100.0625	33.00883	banma	Wo Ye Song grass type	45	19	48
101.0582	32.99597	banma	Wo Ye Song grass type	49	14	59
101.4288	33.40981	jiuzhi	Wo Ye Song grass type	44	19	52
100.8606	33.28694	jiuzhi	Wo Ye Song grass type	38	21	46
101.1386	33.44225	jiuzhi	Wo Ye Song grass type	23	17	42
100.9889	33.44444	jiuzhi	Wo Ye Song grass type	48	20	50
100.9758	33.43164	jiuzhi	Wo Ye Song grass type	53	21	47
101.6023	33.29964	jiuzhi	Wo Ye Song grass type	36	22	47
100.0631	33.00636	banma	Wo Ye Song grass type	45	19	48
101.0601	32.99475	banma	Wo Ye Song grass type	53	14	59
100.0971	32.98867	banma	Wo Ye Song grass type	37	20	49
100.8671	32.82583	banma	Wo Ye Song grass type	23	21	46
100.7299	32.90175	banma	Wo Ye Song grass type	24	17	42
100.0625	33.00883	banma	Wo Ye Song grass type	45	19	48
101.0582	32.99597	banma	Wo Ye Song grass type	49	14	59
101.4288	33.40981	jiuzhi	Wo Ye Song grass type	44	19	52
100.8606	33.28694	jiuzhi	Wo Ye Song grass type	38	21	46
101.1386	33.44225	jiuzhi	Wo Ye Song grass type	23	17	42
100.9889	33.44444	jiuzhi	Wo Ye Song grass type	48	20	50
101.6018	33.30031	jiuzhi	Wo Ye Song grass type	36	22	47
100.0631	33.00636	banma	Wo Ye Song grass type	45	19	48
101.0601	32.99475	banma	Wo Ye Song grass type	53	14	59
100.0971	32.98867	banma	Wo Ye Song grass type	37	20	49
101.495	33.31908	jiuzhi	Wo Ye Song grass type	39	20	50
100.8671	32.82583	banma	Wo Ye Song grass type	23	21	46
101.6018	33.30014	jiuzhi	Wo Ye Song grass type	36	22	47
101.6018	33.30031	jiuzhi	Wo Ye Song grass type	36	22	47
101.6018	33.30031	jiuzhi	Wo Ye Song grass type	36	22	47
101.6018	33.30031	jiuzhi	Wo Ye Song grass type	36	22	31
101.6018	33.30031	jiuzhi	Wo Ye Song grass type	36	22	47
101.6018	33.30031	jiuzhi	Wo Ye Song grass type	36	22	47
101.3001	34.57553	henan	Alpine grass type	25	21	39
99.55403	35.76206	xinghai	Alpine grass type	37	16	60
101.1529	35.30389	zeku	Alpine grass type	20	19	35
101.3773	34.30956	henan	Alpine grass type	18	23	29
101.4573	35.03775	zeku	Alpine grass type	18	17	40
99.71778	33.72694	dari	Alpine grass type	43	20	46
95.63583	32.93444	zaduo	Alpine grass type	20	19	50

99.25672	33.62003	dari	Alpine grass type	39	18	53
99.54053	33.37433	dari	Alpine grass type	48	17	54
99.54	33.37406	dari	Alpine grass type	45	17	54
99	33.68333	dari	Alpine grass type	41	19	48
98.96917	33.68694	dari	Alpine grass type	48	18	54
96.31361	32.25833	nangqian	Alpine grass type	33	23	43
99.82975	34.59606	maqin	Alpine grass type	58	21	46
101.32	34.58303	henan	Alpine grass type	24	21	38
101.1529	35.30389	zeku	Alpine grass type	20	19	35
99.82975	34.59606	maqin	Alpine grass type	58	21	46
101.7949	35.05811	zeku	Alpine grass type	24	20	39
92.37719	34.112	geermu	Alpine grass type	18	17	56
99.71778	33.72694	dari	Alpine grass type	43	20	46
95.63556	32.93406	zaduo	Alpine grass type	34	21	48
99.25672	33.62003	dari	Alpine grass type	39	18	53
99.54053	33.37433	dari	Alpine grass type	48	17	54
99.54	33.37406	dari	Alpine grass type	45	17	54
99	33.68333	dari	Alpine grass type	41	19	48
95.63556	32.93406	zaduo	Alpine grass type	25	17	42
99.55403	35.76206	xinghai	Alpine grass type	37	16	60
101.55	34.63333	henan	Alpine grass type	20	24	25
97.09083	32.84389	yushu	Alpine grass type	28	22	47
97.09206	32.91161	yushu	Alpine grass type	20	21	40
96.31361	32.25842	nangqian	Alpine grass type	33	23	43
99.82975	34.59606	maqin	Alpine grass type	33	20	48
99.55403	35.76206	xinghai	Alpine grass type	37	16	60
101.6119	35.08781	zeku	Alpine grass type	20	17	42
101.4573	35.03775	zeku	Alpine grass type	18	17	40
95.63556	32.93406	zaduo	Alpine grass type	34	21	48
99.25672	33.62003	dari	Alpine grass type	39	18	53
99.54053	33.37433	dari	Alpine grass type	48	17	54
99	33.68333	dari	Alpine grass type	41	19	48
97.09206	32.91161	yushu	Alpine grass type	20	21	40
96.31361	32.25842	nangqian	Alpine grass type	33	23	43
99.82975	34.59606	maqin	Alpine grass type	58	21	46
92.37719	34.112	geermu	Alpine grass type	18	17	56
97.09083	32.84389	yushu	Alpine grass type	28	22	47
99.54	33.37406	dari	Alpine grass type	45	17	54
101.6119	35.08781	zeku	Alpine grass type	20	17	41
101.4573	35.03775	zeku	Alpine grass type	18	17	42
101.8019	35.06211	zeku	Alpine grass type	23	19	40
99.71778	33.72694	dari	Alpine grass type	43	20	34
97.09083	32.84389	yushu	Alpine grass type	28	22	31
99.54389	33.37861	dari	Alpine grass type	49	17	29

98.96917	33.68694	dari	Alpine grass type	48	18	29
97.09206	32.91161	yushu	Alpine grass type	20	21	39
96.31361	32.25842	nangqian	Alpine grass type	33	23	34
99.55403	35.76206	xinghai	Alpine grass type	37	16	24
99.82975	34.59606	maqin	Alpine grass type	58	21	33
92.37719	34.112	geermu	Alpine grass type	18	17	27
100.222	33.41953	dari	Alpine grass type	44	20	34
99.25672	33.62003	dari	Alpine grass type	39	18	28
99.53522	33.36881	dari	Alpine grass type	45	16	28
99	33.68333	dari	Alpine grass type	41	19	32
99.82975	34.59606	maqin	Alpine grass type	44	20	48
99.55403	35.76206	xinghai	Alpine grass type	37	16	60
99.82975	34.59606	maqin	Alpine grass type	58	21	46
101.6119	35.08781	zeku	Alpine grass type	20	17	42
92.37719	34.112	geermu	Alpine grass type	18	17	56
99.71778	33.72694	dari	Alpine grass type	43	20	46
97.09083	32.84389	yushu	Alpine grass type	28	22	47
99.25672	33.62003	dari	Alpine grass type	39	18	53
99.53522	33.36881	dari	Alpine grass type	45	16	56
99.82975	34.59606	maqin	Alpine grass type	35	22	48
99	33.68333	dari	Alpine grass type	41	19	48
97.09206	32.91161	yushu	Alpine grass type	20	21	40
96.31361	32.25842	nangqian	Alpine grass type	33	23	43
99.82975	34.59606	maqin	Alpine grass type	35	19	53
100.222	33.41953	dari	Alpine grass type	44	20	47
95.63556	32.93406	zaduo	Alpine grass type	34	21	48
99.54389	33.37861	dari	Alpine grass type	49	17	54
98.96917	33.68694	dari	Alpine grass type	48	18	54
95.63556	32.93406	zaduo	Alpine grass type	18	20	32
99.55403	35.76206	xinghai	Alpine grass type	37	16	60
101.6119	35.08781	zeku	Alpine grass type	20	17	42
101.8019	35.06211	zeku	Alpine grass type	23	19	41
99.25475	33.75425	dari	Alpine grass type	18	17	56
99.71778	33.72694	dari	Alpine grass type	43	20	46
97.09083	32.84389	yushu	Alpine grass type	28	22	47
99.25672	33.62003	dari	Alpine grass type	39	18	53
99.53522	33.36881	dari	Alpine grass type	45	16	56
99.54389	33.37861	dari	Alpine grass type	49	17	54
99.25475	33.75425	dari	Alpine grass type	17	20	35
99	33.68333	dari	Alpine grass type	41	19	48
97.09206	32.91161	yushu	Alpine grass type	20	21	40
96.31361	32.25842	nangqian	Alpine grass type	33	23	43
101.4573	35.03775	zeku	Alpine grass type	18	17	40
100.222	33.41953	dari	Alpine grass type	44	20	47

95.63556	32.93406	zaduo	Alpine grass type	34	21	48
98.96917	33.68694	dari	Alpine grass type	48	18	54
99.1305	33.68286	dari	Alpine grass type	34	20	48
99.25672	33.62003	dari	Alpine grass type	37	24	44
99.55403	35.76206	xinghai	Alpine grass type	37	16	60
101.6119	35.08781	zeku	Alpine grass type	20	17	42
101.4573	35.03775	zeku	Alpine grass type	18	17	40
92.37719	34.112	geermu	Alpine grass type	18	17	56
100.222	33.41953	dari	Alpine grass type	44	20	47
97.09083	32.84389	yushu	Alpine grass type	28	22	47
95.63556	32.93406	zaduo	Alpine grass type	34	21	48
99.25672	33.62003	dari	Alpine grass type	39	18	53
99.25475	33.75425	dari	Alpine grass type	17	20	35
99	33.68333	dari	Alpine grass type	41	19	48
97.09206	32.91161	yushu	Alpine grass type	20	21	40
99.25672	33.62003	dari	Alpine grass type	30	19	52
99.25672	33.62003	dari	Alpine grass type	35	20	52
99.82975	34.59606	maqin	Alpine grass type	58	21	46
99.71778	33.72694	dari	Alpine grass type	43	20	46
99.53522	33.36881	dari	Alpine grass type	45	16	56
98.96917	33.68694	dari	Alpine grass type	48	18	54
99.1305	33.68286	dari	Alpine grass type	34	20	48
100.0631	34.52242	maqin	Alpine grass type	18	15	42
100.0631	34.52242	maqin	Alpine grass type	35	22	46
99.82975	34.59606	maqin	Alpine grass type	58	21	46
101.6119	35.08781	zeku	Alpine grass type	20	17	42
101.4573	35.03775	zeku	Alpine grass type	18	17	40
97.09083	32.84389	yushu	Alpine grass type	28	22	47
95.63556	32.93406	zaduo	Alpine grass type	34	21	48
99.25672	33.62003	dari	Alpine grass type	39	18	53
99	33.68333	dari	Alpine grass type	41	19	48
97.09206	32.91161	yushu	Alpine grass type	20	21	40
96.31361	32.25842	nangqian	Alpine grass type	33	23	43
100.0631	34.52242	maqin	Alpine grass type	37	24	43
100.0631	34.52242	maqin	Alpine grass type	35	22	46
101.8019	35.06211	zeku	Alpine grass type	23	19	41
100.222	33.41953	dari	Alpine grass type	44	20	47
99.71778	33.72694	dari	Alpine grass type	43	20	46
97.09083	32.84389	yushu	Alpine grass type	19	14	46
99.82975	34.59606	maqin	Alpine grass type	58	21	46
101.6119	35.08781	zeku	Alpine grass type	20	17	42
101.4573	35.03775	zeku	Alpine grass type	18	17	40
100.222	33.41953	dari	Alpine grass type	44	20	47
97.09083	32.84389	yushu	Alpine grass type	28	22	47

95.63556	32.93406	zaduo	Alpine grass type	34	21	48
99.71778	33.72694	dari	Alpine grass type	43	20	46
99.25672	33.62003	dari	Alpine grass type	39	18	53
99.54389	33.37861	dari	Alpine grass type	49	17	54
98.96917	33.68694	dari	Alpine grass type	48	18	54
99	33.68333	dari	Alpine grass type	41	19	48
97.09206	32.91161	yushu	Alpine grass type	20	21	40
101.8019	35.06211	zeku	Alpine grass type	31	18	51
99.55403	35.76206	xinghai	Alpine grass type	37	16	60
101.8019	35.06211	zeku	Alpine grass type	23	19	41
99.53522	33.36881	dari	Alpine grass type	45	16	56
96.31361	32.25842	nangqian	Alpine grass type	33	23	43
99.55403	35.76206	xinghai	Alpine grass type	37	16	60
99.82956	34.59656	maqin	Alpine grass type	56	20	48
101.6119	35.08781	zeku	Alpine grass type	20	17	42
101.8019	35.06211	zeku	Alpine grass type	23	19	41
92.37719	34.112	geermu	Alpine grass type	18	17	56
97.09083	32.84389	yushu	Alpine grass type	28	22	47
95.63556	32.93406	zaduo	Alpine grass type	34	21	48
99.71778	33.72694	dari	Alpine grass type	43	20	46
99.25672	33.62003	dari	Alpine grass type	39	18	53
99.53522	33.36881	dari	Alpine grass type	45	16	56
99.54389	33.37861	dari	Alpine grass type	49	17	54
98.96917	33.68694	dari	Alpine grass type	48	18	54
99	33.68333	dari	Alpine grass type	41	19	48
99.71778	33.72694	dari	Alpine grass type	46	18	48
101.2225	35.51833	guinan	Alpine grass type	19	18	40
99.82975	34.59606	maqin	Alpine grass type	58	21	46
101.6119	35.08781	zeku	Alpine grass type	20	17	42
101.8019	35.06211	zeku	Alpine grass type	23	19	41
100.222	33.41953	dari	Alpine grass type	44	20	47
95.63556	32.93406	zaduo	Alpine grass type	34	21	48
99.25672	33.62003	dari	Alpine grass type	39	18	53
99.54389	33.37861	dari	Alpine grass type	49	17	54
98.96917	33.68694	dari	Alpine grass type	48	18	54
99	33.68333	dari	Alpine grass type	41	19	48
97.09206	32.91161	yushu	Alpine grass type	20	21	40
96.31361	32.25842	nangqian	Alpine grass type	33	23	43
95.88131	34.14158	qumalai	Alpine sycamore, Stipa purpurea	18	17	40
95.76672	33.78969	zhiduo	Alpine sycamore, Stipa purpurea	45	18	50
95.88131	34.14158	qumalai	Alpine sycamore, Stipa purpurea	22	14	44
95.84186	34.24858	qumalai	Alpine sycamore, Stipa purpurea	33	20	48
95.88131	34.14158	qumalai	Alpine sycamore, Stipa purpurea	28	19	47
95.76672	33.78969	zhiduo	Alpine sycamore, Stipa purpurea	35	20	50

95.84197	34.24864	qumalai	Alpine sycamore, Stipa purpurea	33	20	48
95.88131	34.14158	qumalai	Alpine sycamore, Stipa purpurea	28	19	47
95.84197	34.24864	qumalai	Alpine sycamore, Stipa purpurea	33	20	48
95.88131	34.14158	qumalai	Alpine sycamore, Stipa purpurea	28	19	47
95.76672	33.78969	zhiduo	Alpine sycamore, Stipa purpurea	35	20	50
95.84197	34.24864	qumalai	Alpine sycamore, Stipa purpurea	33	20	32
95.88131	34.14158	qumalai	Alpine sycamore, Stipa purpurea	28	19	34
95.76672	33.78969	zhiduo	Alpine sycamore, Stipa purpurea	35	20	30
95.88131	34.14158	qumalai	Alpine sycamore, Stipa purpurea	28	19	47
95.76672	33.78969	zhiduo	Alpine sycamore, Stipa purpurea	35	20	50
95.84197	34.24864	qumalai	Alpine sycamore, Stipa purpurea	33	20	48
95.84197	34.24864	qumalai	Alpine sycamore, Stipa purpurea	33	20	48
95.88131	34.14158	qumalai	Alpine sycamore, Stipa purpurea	28	19	47
95.76672	33.78969	zhiduo	Alpine sycamore, Stipa purpurea	35	20	50
95.84197	34.24864	qumalai	Alpine sycamore, Stipa purpurea	33	20	48
95.88131	34.14158	qumalai	Alpine sycamore, Stipa purpurea	28	19	47
95.76672	33.78969	zhiduo	Alpine sycamore, Stipa purpurea	35	20	50
95.84197	34.24864	qumalai	Alpine sycamore, Stipa purpurea	33	20	48
95.88131	34.14158	qumalai	Alpine sycamore, Stipa purpurea	28	19	47
95.76672	33.78969	zhiduo	Alpine sycamore, Stipa purpurea	35	20	50
95.339	33.88797	zhiduo	Alpine sycamore, Stipa purpurea	25	17	42
95.88131	34.14158	qumalai	Alpine sycamore, Stipa purpurea	28	19	47
95.76672	33.78969	zhiduo	Alpine sycamore, Stipa purpurea	35	20	50
95.88131	34.14158	qumalai	Alpine sycamore, Stipa purpurea	28	19	47
95.76672	33.78969	zhiduo	Alpine sycamore, Stipa purpurea	35	20	50
95.339	33.88797	zhiduo	Alpine sycamore, Stipa purpurea	37	16	59
95.84197	34.24864	qumalai	Alpine sycamore, Stipa purpurea	33	20	48
95.88131	34.14158	qumalai	Alpine sycamore, Stipa purpurea	17	18	44
95.84197	34.24864	qumalai	Alpine sycamore, Stipa purpurea	33	20	48
95.88131	34.14158	qumalai	Alpine sycamore, Stipa purpurea	28	19	47
95.76672	33.78969	zhiduo	Alpine sycamore, Stipa purpurea	35	20	50
95.84197	34.24864	qumalai	Alpine sycamore, Stipa purpurea	33	20	48
95.88131	34.14158	qumalai	Alpine sycamore, Stipa purpurea	28	19	47
95.76672	33.78969	zhiduo	Alpine sycamore, Stipa purpurea	35	20	50
101.6895	35.77036	jianzha	Alpine pine grass, bluegrass type	29	18	41
95.69417	33.92142	zhiduo	Alpine pine grass, weeds	17	20	32
95.35969	34.52083	qumalai	Alpine pine grass, weeds	39	17	55
100.1723	34.17114	gande	Alpine pine grass, weeds	40	20	49
95.36436	34.52036	qumalai	Alpine pine grass, weeds	38	17	55
97.32558	33.38047	chengduo	Alpine pine grass, weeds	18	15	46
101.0058	35.1945	zeku	Alpine pine grass, weeds	28	20	39
95.69417	33.92142	zhiduo	Alpine pine grass, weeds	17	20	32
97.32389	33.37806	chengduo	Alpine pine grass, weeds	18	15	46
101.0058	35.1945	zeku	Alpine pine grass, weeds	28	20	39
100.8917	34.89844	tongde	Alpine pine grass, weeds	25	20	40
95.36022	34.53725	qumalai	Alpine pine grass, weeds	37	18	54
95.69417	33.92142	zhiduo	Alpine pine grass, weeds	17	20	32

95.69989	33.90256	zhiduo	Alpine pine grass, weeds	18	20	32
100.1723	34.17114	gande	Alpine pine grass, weeds	40	20	49
95.36436	34.52036	qumalai	Alpine pine grass, weeds	38	17	55
95.69961	33.90297	zhiduo	Alpine pine grass, weeds	18	20	32
101.0058	35.1945	zeku	Alpine pine grass, weeds	22	14	44
101.0058	35.1945	zeku	Alpine pine grass, weeds	28	20	41
100.8917	34.89844	tongde	Alpine pine grass, weeds	25	20	40
95.36022	34.53725	qumalai	Alpine pine grass, weeds	37	18	28
100.1723	34.17114	gande	Alpine pine grass, weeds	40	20	31
95.36436	34.52036	qumalai	Alpine pine grass, weeds	38	17	28
95.69417	33.92142	zhiduo	Alpine pine grass, weeds	17	20	48
95.69989	33.90256	zhiduo	Alpine pine grass, weeds	18	20	48
95.69961	33.90297	zhiduo	Alpine pine grass, weeds	18	20	48
100.1723	34.17114	gande	Alpine pine grass, weeds	34	21	45
95.69961	33.90297	zhiduo	Alpine pine grass, weeds	17	17	39
100.8917	34.89844	tongde	Alpine pine grass, weeds	25	20	40
95.36022	34.53725	qumalai	Alpine pine grass, weeds	37	18	54
95.36436	34.52036	qumalai	Alpine pine grass, weeds	38	17	55
97.32389	33.37806	chengduo	Alpine pine grass, weeds	18	15	46
95.69989	33.90256	zhiduo	Alpine pine grass, weeds	18	20	32
95.69961	33.90297	zhiduo	Alpine pine grass, weeds	18	20	32
101.0058	35.1945	zeku	Alpine pine grass, weeds	28	20	39
101.0058	35.1945	zeku	Alpine pine grass, weeds	28	20	39
100.8917	34.89844	tongde	Alpine pine grass, weeds	25	20	40
95.69417	33.92142	zhiduo	Alpine pine grass, weeds	17	20	32
95.69961	33.90297	zhiduo	Alpine pine grass, weeds	18	20	32
100.1723	34.17114	gande	Alpine pine grass, weeds	40	20	49
97.32389	33.37806	chengduo	Alpine pine grass, weeds	18	15	46
97.32558	33.38047	chengduo	Alpine pine grass, weeds	18	15	46
100.8917	34.89844	tongde	Alpine pine grass, weeds	25	20	40
95.36022	34.53725	qumalai	Alpine pine grass, weeds	37	18	54
100.1723	34.17114	gande	Alpine pine grass, weeds	40	20	49
95.36436	34.52036	qumalai	Alpine pine grass, weeds	38	17	55
97.32389	33.37806	chengduo	Alpine pine grass, weeds	18	15	46
97.32558	33.38047	chengduo	Alpine pine grass, weeds	18	15	46
95.69417	33.92142	zhiduo	Alpine pine grass, weeds	17	20	32
101.0058	35.1945	zeku	Alpine pine grass, weeds	28	20	39
95.69989	33.90256	zhiduo	Alpine pine grass, weeds	18	20	32
101.0058	35.1945	zeku	Alpine pine grass, weeds	28	20	39
100.8917	34.89844	tongde	Alpine pine grass, weeds	25	20	40
100.1723	34.17114	gande	Alpine pine grass, weeds	40	20	49
95.36436	34.52036	qumalai	Alpine pine grass, weeds	38	17	55
95.41019	33.83667	zhiduo	Alpine pine grass, weeds	33	20	51
97.32389	33.37806	chengduo	Alpine pine grass, weeds	18	15	46

100.8917	34.89844	tongde	Alpine pine grass, weeds	45	16	56
95.69417	33.92142	zhiduo	Alpine pine grass, weeds	17	20	32
95.69989	33.90256	zhiduo	Alpine pine grass, weeds	18	20	32
95.69961	33.90297	zhiduo	Alpine pine grass, weeds	18	20	32
101.0058	35.1945	zeku	Alpine pine grass, weeds	28	20	39
95.36022	34.53725	qumalai	Alpine pine grass, weeds	37	18	54
97.32558	33.38047	chengduo	Alpine pine grass, weeds	18	15	46
100.8917	34.89844	tongde	Alpine pine grass, weeds	25	20	40
95.36022	34.53725	qumalai	Alpine pine grass, weeds	37	18	54
100.1723	34.17114	gande	Alpine pine grass, weeds	40	20	49
97.32389	33.37806	chengduo	Alpine pine grass, weeds	18	15	46
95.69417	33.92142	zhiduo	Alpine pine grass, weeds	17	20	32
95.36436	34.52036	qumalai	Alpine pine grass, weeds	38	17	55
95.41019	33.83667	zhiduo	Alpine pine grass, weeds	33	20	51
97.32558	33.38047	chengduo	Alpine pine grass, weeds	18	15	46
95.69989	33.90256	zhiduo	Alpine pine grass, weeds	18	20	32
101.0058	35.1945	zeku	Alpine pine grass, weeds	28	20	39
100.8016	35.26756	tongde	Alpine pine grass, weeds	17	19	51
100.8917	34.89844	tongde	Alpine pine grass, weeds	25	20	40
100.1723	34.17114	gande	Alpine pine grass, weeds	40	20	49
95.36436	34.52036	qumalai	Alpine pine grass, weeds	38	17	55
95.41019	33.83667	zhiduo	Alpine pine grass, weeds	33	20	51
97.32558	33.38047	chengduo	Alpine pine grass, weeds	18	15	46
95.69417	33.92142	zhiduo	Alpine pine grass, weeds	17	20	32
95.69989	33.90256	zhiduo	Alpine pine grass, weeds	18	20	32
95.69961	33.90297	zhiduo	Alpine pine grass, weeds	18	20	32
101.0058	35.1945	zeku	Alpine pine grass, weeds	28	20	39
100.8917	34.89844	tongde	Alpine pine grass, weeds	25	20	40
95.36022	34.53725	qumalai	Alpine pine grass, weeds	37	18	54
95.36436	34.52036	qumalai	Alpine pine grass, weeds	38	17	55
95.36917	32.87139	zaduo	Alpine pine grass, weeds	39	23	46
95.41019	33.83667	zhiduo	Alpine pine grass, weeds	33	20	51
97.32389	33.37806	chengduo	Alpine pine grass, weeds	18	15	46
97.32558	33.38047	chengduo	Alpine pine grass, weeds	18	15	46
95.69989	33.90256	zhiduo	Alpine pine grass, weeds	18	20	32
95.69961	33.90297	zhiduo	Alpine pine grass, weeds	18	20	32
95.69417	33.92142	zhiduo	Alpine pine grass, weeds	17	20	32
95.41019	33.83667	zhiduo	Alpine pine grass, weeds	19	22	39
97.24167	33.35611	chengduo	Alpine sagebrush, Polygonum vulgaris	34	22	44
96.10728	32.33303	nangqian	Alpine sagebrush, Polygonum vulgaris	26	21	40
96.38972	32.46972	nangqian	Alpine sagebrush, Polygonum vulgaris	18	20	47
97.21094	33.34397	chengduo	Alpine sagebrush, Polygonum vulgaris	34	20	49
96.10706	32.327	nangqian	Alpine sagebrush, Polygonum vulgaris	25	20	43
96.17417	32.29611	nangqian	Alpine sagebrush, Polygonum vulgaris	37	24	43

96.17322	32.29667	nangqian	Alpine sagebrush, Polygonum vulgaris	37	24	43
96.38931	32.46942	nangqian	Alpine sagebrush, Polygonum vulgaris	18	20	47
96.38931	32.46942	nangqian	Alpine sagebrush, Polygonum vulgaris	18	20	47
96.17417	32.29611	nangqian	Alpine sagebrush, Polygonum vulgaris	37	24	43
96.17322	32.29667	nangqian	Alpine sagebrush, Polygonum vulgaris	37	24	43
96.69472	33.12333	yushu	Alpine sagebrush, Polygonum vulgaris	34	22	45
96.10706	32.327	nangqian	Alpine sagebrush, Polygonum vulgaris	25	20	43
96.69472	33.12333	yushu	Alpine sagebrush, Polygonum vulgaris	34	22	33
96.38931	32.46942	nangqian	Alpine sagebrush, Polygonum vulgaris	18	20	33
96.17417	32.29611	nangqian	Alpine sagebrush, Polygonum vulgaris	37	24	33
96.17322	32.29667	nangqian	Alpine sagebrush, Polygonum vulgaris	37	24	32
96.10706	32.327	nangqian	Alpine sagebrush, Polygonum vulgaris	25	20	37
97.21094	33.34397	chengduo	Alpine sagebrush, Polygonum vulgaris	34	20	49
96.69472	33.12333	yushu	Alpine sagebrush, Polygonum vulgaris	34	22	45
96.38931	32.46942	nangqian	Alpine sagebrush, Polygonum vulgaris	18	20	47
96.10706	32.327	nangqian	Alpine sagebrush, Polygonum vulgaris	25	20	43
96.17417	32.29611	nangqian	Alpine sagebrush, Polygonum vulgaris	37	24	43
96.17322	32.29667	nangqian	Alpine sagebrush, Polygonum vulgaris	37	24	43
96.38931	32.46942	nangqian	Alpine sagebrush, Polygonum vulgaris	24	17	46
96.69472	33.12333	yushu	Alpine sagebrush, Polygonum vulgaris	34	22	45
96.38931	32.46942	nangqian	Alpine sagebrush, Polygonum vulgaris	18	20	47
96.10706	32.327	nangqian	Alpine sagebrush, Polygonum vulgaris	25	20	43
96.17417	32.29611	nangqian	Alpine sagebrush, Polygonum vulgaris	37	24	43
96.17322	32.29667	nangqian	Alpine sagebrush, Polygonum vulgaris	37	24	43
97.21094	33.34397	chengduo	Alpine sagebrush, Polygonum vulgaris	34	20	49
96.38931	32.46942	nangqian	Alpine sagebrush, Polygonum vulgaris	18	20	47
96.17417	32.29611	nangqian	Alpine sagebrush, Polygonum vulgaris	37	24	43
96.38931	32.46942	nangqian	Alpine sagebrush, Polygonum vulgaris	33	23	43
96.69472	33.12333	yushu	Alpine sagebrush, Polygonum vulgaris	34	22	45
96.10706	32.327	nangqian	Alpine sagebrush, Polygonum vulgaris	25	20	43
97.21094	33.34397	chengduo	Alpine sagebrush, Polygonum vulgaris	34	20	49
96.69472	33.12333	yushu	Alpine sagebrush, Polygonum vulgaris	34	22	45
96.38931	32.46942	nangqian	Alpine sagebrush, Polygonum vulgaris	18	20	47
96.10706	32.327	nangqian	Alpine sagebrush, Polygonum vulgaris	25	20	43
96.17417	32.29611	nangqian	Alpine sagebrush, Polygonum vulgaris	37	24	43
97.21094	33.34397	chengduo	Alpine sagebrush, Polygonum vulgaris	20	21	40
97.21094	33.34397	chengduo	Alpine sagebrush, Polygonum vulgaris	34	20	49
96.38931	32.46942	nangqian	Alpine sagebrush, Polygonum vulgaris	18	20	47
96.17417	32.29611	nangqian	Alpine sagebrush, Polygonum vulgaris	37	24	43
96.17322	32.29667	nangqian	Alpine sagebrush, Polygonum vulgaris	37	24	43
96.17417	32.29611	nangqian	Alpine sagebrush, Polygonum vulgaris	37	24	43
96.69472	33.12333	yushu	Alpine sagebrush, Polygonum vulgaris	34	22	45
96.10706	32.327	nangqian	Alpine sagebrush, Polygonum vulgaris	25	20	43
97.21094	33.34397	chengduo	Alpine sagebrush, Polygonum vulgaris	34	20	49

96.69472	33.12333	yushu	Alpine sagebrush, Polygonum vulgaris	34	22	45
96.38931	32.46942	nangqian	Alpine sagebrush, Polygonum vulgaris	18	20	47
96.10706	32.327	nangqian	Alpine sagebrush, Polygonum vulgaris	25	20	43
97.21094	33.34397	chengduo	Alpine sagebrush, Polygonum vulgaris	34	20	49
96.38931	32.46942	nangqian	Alpine sagebrush, Polygonum vulgaris	18	20	47
96.17417	32.29611	nangqian	Alpine sagebrush, Polygonum vulgaris	37	24	43
96.17322	32.29667	nangqian	Alpine sagebrush, Polygonum vulgaris	37	24	43
96.38931	32.46942	nangqian	Alpine sagebrush, Polygonum vulgaris	24	20	39
95.835	34.08317	qumalai	Alpine sylvestris, Heterospina species	33	17	54
96.75131	32.90194	yushu	Alpine sylvestris, Heterospina species	33	19	55
96.96669	32.86	yushu	Alpine sylvestris, Heterospina species	30	18	55
95.58328	33.81972	zhiduo	Alpine sylvestris, Heterospina species	38	20	49
96.96669	32.86	yushu	Alpine sylvestris, Heterospina species	18	19	35
97.19819	33.73894	chengduo	Alpine sylvestris, Heterospina species	30	18	51
95.20292	32.91753	zaduo	Alpine sylvestris, Heterospina species	32	24	44
95.835	34.08317	qumalai	Alpine sylvestris, Heterospina species	20	17	42
95.20292	32.91753	zaduo	Alpine sylvestris, Heterospina species	49	17	54
95.83442	34.08278	qumalai	Alpine sylvestris, Heterospina species	34	17	54
96.75131	32.90194	yushu	Alpine sylvestris, Heterospina species	33	19	55
96.96669	32.86	yushu	Alpine sylvestris, Heterospina species	30	18	55
95.58328	33.81972	zhiduo	Alpine sylvestris, Heterospina species	38	20	49
94.99622	32.85094	zaduo	Alpine sylvestris, Heterospina species	35	22	46
94.98557	32.84819	zaduo	Alpine sylvestris, Heterospina species	35	22	48
94.99605	32.85115	zaduo	Alpine sylvestris, Heterospina species	35	22	46
96.55961	32.88922	yushu	Alpine sylvestris, Heterospina species	36	19	51
97.08528	32.84389	yushu	Alpine sylvestris, Heterospina species	28	21	48
95.17033	32.68833	zaduo	Alpine sylvestris, Heterospina species	30	19	52
95.20292	32.91753	zaduo	Alpine sylvestris, Heterospina species	32	24	44
95.17031	32.66144	zaduo	Alpine sylvestris, Heterospina species	31	22	49
96.75131	32.90194	yushu	Alpine sylvestris, Heterospina species	33	19	55
96.96669	32.86	yushu	Alpine sylvestris, Heterospina species	30	18	55
95.58328	33.81972	zhiduo	Alpine sylvestris, Heterospina species	38	20	49
96.55958	32.88908	yushu	Alpine sylvestris, Heterospina species	36	19	51
94.99622	32.85094	zaduo	Alpine sylvestris, Heterospina species	35	22	46
94.98557	32.84819	zaduo	Alpine sylvestris, Heterospina species	35	22	48
94.99605	32.85115	zaduo	Alpine sylvestris, Heterospina species	35	22	46
96.55961	32.88922	yushu	Alpine sylvestris, Heterospina species	36	19	51
97.08528	32.84389	yushu	Alpine sylvestris, Heterospina species	28	21	48
95.17903	32.66297	zaduo	Alpine sylvestris, Heterospina species	33	20	51
95.17033	32.68833	zaduo	Alpine sylvestris, Heterospina species	30	19	52
95.83442	34.08278	qumalai	Alpine sylvestris, Heterospina species	34	17	54
95.20292	32.91753	zaduo	Alpine sylvestris, Heterospina species	32	24	44
95.17075	32.68883	zaduo	Alpine sylvestris, Heterospina species	30	19	52
95.20292	32.91753	zaduo	Alpine sylvestris, Heterospina species	17	17	43

95.20292	32.91753	zaduo	Alpine sylvestris, Heterospina species	32	24	32
95.58328	33.81972	zhiduo	Alpine sylvestris, Heterospina species	38	20	31
94.98557	32.84819	zaduo	Alpine sylvestris, Heterospina species	35	22	31
96.75131	32.90194	yushu	Alpine sylvestris, Heterospina species	33	19	27
97.08528	32.84389	yushu	Alpine sylvestris, Heterospina species	28	21	31
95.17903	32.66297	zaduo	Alpine sylvestris, Heterospina species	33	20	29
95.17075	32.68883	zaduo	Alpine sylvestris, Heterospina species	30	19	29
95.17033	32.68833	zaduo	Alpine sylvestris, Heterospina species	30	19	29
97.20311	33.34872	chengduo	Alpine sylvestris, Heterospina species	38	21	46
95.83442	34.08278	qumalai	Alpine sylvestris, Heterospina species	34	17	28
97.20311	33.34872	chengduo	Alpine sylvestris, Heterospina species	33	21	33
96.96669	32.86	yushu	Alpine sylvestris, Heterospina species	30	18	27
94.99622	32.85094	zaduo	Alpine sylvestris, Heterospina species	35	22	33
94.99605	32.85115	zaduo	Alpine sylvestris, Heterospina species	35	22	33
96.55961	32.88922	yushu	Alpine sylvestris, Heterospina species	36	19	29
97.20311	33.34872	chengduo	Alpine sylvestris, Heterospina species	33	21	47
96.55958	32.88908	yushu	Alpine sylvestris, Heterospina species	36	19	51
95.20292	32.91753	zaduo	Alpine sylvestris, Heterospina species	32	24	44
95.58328	33.81972	zhiduo	Alpine sylvestris, Heterospina species	38	20	49
96.75131	32.90194	yushu	Alpine sylvestris, Heterospina species	33	19	55
96.55961	32.88922	yushu	Alpine sylvestris, Heterospina species	36	19	51
97.08528	32.84389	yushu	Alpine sylvestris, Heterospina species	28	21	48
95.17075	32.68883	zaduo	Alpine sylvestris, Heterospina species	30	19	52
95.58328	33.81972	zhiduo	Alpine sylvestris, Heterospina species	35	22	46
95.58328	33.81972	zhiduo	Alpine sylvestris, Heterospina species	32	21	50
96.96669	32.86	yushu	Alpine sylvestris, Heterospina species	30	18	55
94.99622	32.85094	zaduo	Alpine sylvestris, Heterospina species	35	22	46
94.99605	32.85115	zaduo	Alpine sylvestris, Heterospina species	35	22	46
95.17033	32.68833	zaduo	Alpine sylvestris, Heterospina species	30	19	52
96.96669	32.86	yushu	Alpine sylvestris, Heterospina species	30	18	55
96.55958	32.88908	yushu	Alpine sylvestris, Heterospina species	36	19	51
94.98556	32.84819	zaduo	Alpine sylvestris, Heterospina species	35	22	48
94.99606	32.85114	zaduo	Alpine sylvestris, Heterospina species	35	22	46
96.75131	32.90194	yushu	Alpine sylvestris, Heterospina species	33	19	55
96.55961	32.88922	yushu	Alpine sylvestris, Heterospina species	36	19	51
95.17903	32.66297	zaduo	Alpine sylvestris, Heterospina species	33	20	51
95.17075	32.68883	zaduo	Alpine sylvestris, Heterospina species	30	19	52
96.55961	32.88922	yushu	Alpine sylvestris, Heterospina species	36	19	51
97.20311	33.34872	chengduo	Alpine sylvestris, Heterospina species	33	21	47
95.58328	33.81972	zhiduo	Alpine sylvestris, Heterospina species	38	20	49
95.339	33.88797	zhiduo	Alpine sylvestris, Heterospina species	34	19	52
97.20311	33.34872	chengduo	Alpine sylvestris, Heterospina species	33	21	47
96.96669	32.86	yushu	Alpine sylvestris, Heterospina species	30	18	55
95.20292	32.91753	zaduo	Alpine sylvestris, Heterospina species	32	24	44

95.20292	32.91753	zaduo	Alpine sylvestris, Heterospina species	49	17	54
94.99606	32.85114	zaduo	Alpine sylvestris, Heterospina species	35	22	46
96.75131	32.90194	yushu	Alpine sylvestris, Heterospina species	33	19	55
97.08528	32.84389	yushu	Alpine sylvestris, Heterospina species	28	21	48
95.17075	32.68883	zaduo	Alpine sylvestris, Heterospina species	30	19	52
96.55958	32.88908	yushu	Alpine sylvestris, Heterospina species	36	19	51
95.58328	33.81972	zhiduo	Alpine sylvestris, Heterospina species	38	20	49
95.17903	32.66297	zaduo	Alpine sylvestris, Heterospina species	33	20	51
95.17033	32.68833	zaduo	Alpine sylvestris, Heterospina species	30	19	52
96.96669	32.86	yushu	Alpine sylvestris, Heterospina species	30	18	55
96.55958	32.88908	yushu	Alpine sylvestris, Heterospina species	36	19	51
94.99606	32.85114	zaduo	Alpine sylvestris, Heterospina species	35	22	46
96.75131	32.90194	yushu	Alpine sylvestris, Heterospina species	33	19	55
97.08528	32.84389	yushu	Alpine sylvestris, Heterospina species	28	21	48
95.17903	32.66297	zaduo	Alpine sylvestris, Heterospina species	33	20	51
95.17075	32.68883	zaduo	Alpine sylvestris, Heterospina species	30	19	52
95.339	33.88797	zhiduo	Alpine sylvestris, Heterospina species	34	19	52
97.20311	33.34872	chengduo	Alpine sylvestris, Heterospina species	33	21	47
95.58328	33.81972	zhiduo	Alpine sylvestris, Heterospina species	38	20	49
94.98556	32.84819	zaduo	Alpine sylvestris, Heterospina species	35	22	48
96.55961	32.88922	yushu	Alpine sylvestris, Heterospina species	36	19	51
94.99606	32.85114	zaduo	Alpine sylvestris, Heterospina species	22	14	44
95.83442	34.08278	qumalai	Alpine sylvestris, Heterospina species	34	17	54
95.339	33.88797	zhiduo	Alpine sylvestris, Heterospina species	34	19	52
97.20311	33.34872	chengduo	Alpine sylvestris, Heterospina species	33	21	47
97.34619	33.40592	chengduo	Alpine sylvestris, Heterospina species	16	15	48
96.96669	32.86	yushu	Alpine sylvestris, Heterospina species	30	18	55
96.55958	32.88908	yushu	Alpine sylvestris, Heterospina species	36	19	51
95.20292	32.91753	zaduo	Alpine sylvestris, Heterospina species	32	24	44
95.58328	33.81972	zhiduo	Alpine sylvestris, Heterospina species	38	20	49
94.99622	32.85094	zaduo	Alpine sylvestris, Heterospina species	35	22	46
94.98556	32.84819	zaduo	Alpine sylvestris, Heterospina species	35	22	48
94.99606	32.85114	zaduo	Alpine sylvestris, Heterospina species	35	22	46
97.08528	32.84389	yushu	Alpine sylvestris, Heterospina species	28	21	48
95.17903	32.66297	zaduo	Alpine sylvestris, Heterospina species	33	20	51
95.17903	32.66297	zaduo	Alpine sylvestris, Heterospina species	30	19	52
96.75131	32.90194	yushu	Alpine sylvestris, Heterospina species	33	19	55
96.55961	32.88922	yushu	Alpine sylvestris, Heterospina species	36	19	51
95.17075	32.68883	zaduo	Alpine sylvestris, Heterospina species	30	19	52
95.17075	32.68883	zaduo	Alpine sylvestris, Heterospina species	18	19	35
95.17075	32.68883	zaduo	Alpine sylvestris, Heterospina species	18	19	35
95.83442	34.08278	qumalai	Alpine sylvestris, Heterospina species	34	17	54
95.339	33.88797	zhiduo	Alpine sylvestris, Heterospina species	34	19	52
97.20311	33.34872	chengduo	Alpine sylvestris, Heterospina species	33	21	47

97.34619	33.40592	chengduo	Alpine sylvestris, Heterospina species	16	15	48
96.96669	32.86	yushu	Alpine sylvestris, Heterospina species	30	18	55
96.55958	32.88908	yushu	Alpine sylvestris, Heterospina species	36	19	51
95.20292	32.91753	zaduo	Alpine sylvestris, Heterospina species	32	24	44
94.99622	32.85094	zaduo	Alpine sylvestris, Heterospina species	35	22	46
94.98556	32.84819	zaduo	Alpine sylvestris, Heterospina species	35	22	48
94.99606	32.85114	zaduo	Alpine sylvestris, Heterospina species	35	22	46
96.75131	32.90194	yushu	Alpine sylvestris, Heterospina species	33	19	55
96.55961	32.88922	yushu	Alpine sylvestris, Heterospina species	36	19	51
97.08528	32.84389	yushu	Alpine sylvestris, Heterospina species	28	21	48
95.17903	32.66297	zaduo	Alpine sylvestris, Heterospina species	33	20	51
95.17075	32.68883	zaduo	Alpine sylvestris, Heterospina species	30	19	52
97.34619	33.40592	chengduo	Alpine sylvestris, Heterospina species	18	15	42
95.83442	34.08278	qumalai	Alpine sylvestris, Heterospina species	43	22	45
97.34619	33.40592	chengduo	Alpine sylvestris, Heterospina species	18	20	32
101.6117	35.92806	guide	Alpine sylvestris, Heterospina species	23	19	44
101.8363	35.77744	jianzha	Alpine sylvestris, Heterospina species	31	17	42
95.83442	34.08278	qumalai	Alpine sylvestris, Heterospina species	34	17	54
95.339	33.88797	zhiduo	Alpine sylvestris, Heterospina species	34	19	52
97.20311	33.34872	chengduo	Alpine sylvestris, Heterospina species	33	21	47
97.34619	33.40592	chengduo	Alpine sylvestris, Heterospina species	16	15	48
96.55958	32.88908	yushu	Alpine sylvestris, Heterospina species	36	19	51
94.99622	32.85094	zaduo	Alpine sylvestris, Heterospina species	35	22	46
94.98556	32.84819	zaduo	Alpine sylvestris, Heterospina species	35	22	48
94.99606	32.85114	zaduo	Alpine sylvestris, Heterospina species	35	22	46
96.75131	32.90194	yushu	Alpine sylvestris, Heterospina species	33	19	55
96.55961	32.88922	yushu	Alpine sylvestris, Heterospina species	36	19	51
95.58328	33.81972	zhiduo	Alpine sylvestris, Heterospina species	38	20	49
95.17903	32.66297	zaduo	Alpine sylvestris, Heterospina species	33	20	51
95.17075	32.68883	zaduo	Alpine sylvestris, Heterospina species	30	19	52
97.34619	33.40592	chengduo	Alpine sylvestris, Heterospina species	22	14	44
95.17903	32.66297	zaduo	Alpine sylvestris, Heterospina species	18	20	32
96.18472	32.29881	nangqian	Alpine pine grass, slender grass type	37	24	44
96.18475	32.29883	nangqian	Alpine pine grass, slender grass type	37	24	44
96.18475	32.29883	nangqian	Alpine pine grass, slender grass type	37	24	44
96.18475	32.29883	nangqian	Alpine pine grass, slender grass type	37	24	32
96.18475	32.29883	nangqian	Alpine pine grass, slender grass type	37	24	44
96.18475	32.29883	nangqian	Alpine pine grass, slender grass type	37	24	44
96.18475	32.29883	nangqian	Alpine pine grass, slender grass type	43	17	55
96.18475	32.29883	nangqian	Alpine pine grass, slender grass type	45	19	48
96.18475	32.29883	nangqian	Alpine pine grass, slender grass type	37	24	44
96.18475	32.29883	nangqian	Alpine pine grass, slender grass type	37	24	44
96.18475	32.29883	nangqian	Alpine pine grass, slender grass type	37	24	44
97.50028	34.0125	chengduo	Alpine pine grass, dwarf pine grass type	38	17	55

97.49944	34.01333	chengduo	Alpine pine grass, dwarf pine grass type	38	17	55
97.50028	34.0125	chengduo	Alpine pine grass, dwarf pine grass type	38	17	55
97.49944	34.01333	chengduo	Alpine pine grass, dwarf pine grass type	38	17	55
97.50028	34.0125	chengduo	Alpine pine grass, dwarf pine grass type	38	17	55
97.49944	34.01333	chengduo	Alpine pine grass, dwarf pine grass type	38	17	55
97.50028	34.0125	chengduo	Alpine pine grass, dwarf pine grass type	38	17	55
97.49944	34.01333	chengduo	Alpine pine grass, dwarf pine grass type	38	17	55
97.50028	34.0125	chengduo	Alpine pine grass, dwarf pine grass type	38	17	55
97.49944	34.01333	chengduo	Alpine pine grass, dwarf pine grass type	38	17	55
97.50028	34.0125	chengduo	Alpine pine grass, dwarf pine grass type	38	17	55
97.49944	34.01333	chengduo	Alpine pine grass, dwarf pine grass type	38	17	55
97.50028	34.0125	chengduo	Alpine pine grass, dwarf pine grass type	38	17	55
97.49944	34.01333	chengduo	Alpine pine grass, dwarf pine grass type	38	17	55
97.50028	34.0125	chengduo	Alpine pine grass, dwarf pine grass type	38	17	55
97.49944	34.01333	chengduo	Alpine pine grass, dwarf pine grass type	38	17	55
100.9839	35.79156	guinan	Stipa brevis	15	6	80
100.0759	35.46667	xinghai	Stipa brevis, Qinghai sand-fixing grass type	19	17	43
99.93519	35.66128	xinghai	Stipa brevis, Qinghai sand-fixing grass type	25	17	47
100.0759	35.46667	xinghai	Stipa brevis, Qinghai sand-fixing grass type	46	18	48
100.1124	35.93797	xinghai	Stipa brevis, Qinghai sand-fixing grass type	18	17	44
100.1124	35.93797	xinghai	Stipa brevis, Qinghai sand-fixing grass type	20	18	41
100.1124	35.93797	xinghai	Stipa brevis, Qinghai sand-fixing grass type	18	17	44
100.1139	35.93878	xinghai	Stipa brevis, Qinghai sand-fixing grass type	18	17	44
100.0881	35.92586	xinghai	Stipa brevis, Qinghai sand-fixing grass type	17	17	43
100.0883	35.92556	xinghai	Stipa brevis, Qinghai sand-fixing grass type	18	17	43
100.0955	35.427	xinghai	Stipa brevis, Qinghai sand-fixing grass type	16	17	44
100.1784	35.28333	xinghai	Stipa brevis, Qinghai sand-fixing grass type	16	19	41
99.93519	35.66128	xinghai	Stipa brevis, Qinghai sand-fixing grass type	25	17	47
100.0955	35.427	xinghai	Stipa brevis, Qinghai sand-fixing grass type	16	17	44
100.1784	35.28333	xinghai	Stipa brevis, Qinghai sand-fixing grass type	16	19	41
100.089	35.93781	xinghai	Stipa brevis, Qinghai sand-fixing grass type	19	17	43
99.93519	35.66128	xinghai	Stipa brevis, Qinghai sand-fixing grass type	25	17	47
100.1161	35.93597	xinghai	Stipa brevis, Qinghai sand-fixing grass type	17	18	44
100.0881	35.92586	xinghai	Stipa brevis, Qinghai sand-fixing grass type	17	17	43
100.1124	35.93797	xinghai	Stipa brevis, Qinghai sand-fixing grass type	18	17	44
100.0759	35.46667	xinghai	Stipa brevis, Qinghai sand-fixing grass type	19	17	40
100.1814	35.28514	xinghai	Stipa brevis, Qinghai sand-fixing grass type	16	19	41
100.089	35.93781	xinghai	Stipa brevis, Qinghai sand-fixing grass type	19	17	40
99.93519	35.66128	xinghai	Stipa brevis, Qinghai sand-fixing grass type	25	17	36
100.0881	35.92586	xinghai	Stipa brevis, Qinghai sand-fixing grass type	17	17	40
100.089	35.93781	xinghai	Stipa brevis, Qinghai sand-fixing grass type	38	20	49
100.1161	35.93597	xinghai	Stipa brevis, Qinghai sand-fixing grass type	17	18	38
100.0759	35.46667	xinghai	Stipa brevis, Qinghai sand-fixing grass type	19	17	43
100.1814	35.28514	xinghai	Stipa brevis, Qinghai sand-fixing grass type	16	19	40

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100.0881	35.92586	xinghai	Stipa brevis, Qinghai sand-fixing grass type	17	17	43
100.1161	35.93597	xinghai	Stipa brevis, Qinghai sand-fixing grass type	17	18	44
100.089	35.93781	xinghai	Stipa brevis, Qinghai sand-fixing grass type	46	18	48
101.8682	35.21703	zeku	Elysee weed	25	17	42
100.6968	34.07575	gande	Elysee weed	27	17	46
97.91517	35.07525	maduo	Elysee weed	33	17	54
97.91517	35.07525	maduo	Elysee weed	33	17	54
99.71778	33.72694	dari	Elysee weed	43	20	46
100.6968	34.07575	gande	Elysee weed	27	17	46
101.8682	35.21547	zeku	Elysee weed	26	17	41
101.8682	35.21703	zeku	Elysee weed	25	17	40
97.91517	35.07525	maduo	Elysee weed	33	17	29
100.6968	34.07575	gande	Elysee weed	27	17	36
101.8682	35.21547	zeku	Elysee weed	26	17	42
100.6968	34.07575	gande	Elysee weed	27	17	46
100.6968	34.07575	gande	Elysee weed	22	14	44
101.8682	35.21703	zeku	Elysee weed	25	17	42
100.3006	32.81056	banma	Elysee weed	43	20	49
101.8682	35.21547	zeku	Elysee weed	26	17	42
100.6968	34.07575	gande	Elysee weed	27	17	46
100.5947	32.84083	banma	Elysee weed	43	20	50
100.3006	32.81056	banma	Elysee weed	43	20	49
100.5947	32.84083	banma	Elysee weed	25	17	42
101.8704	35.20139	zeku	Elysee weed	27	19	42
97.91517	35.07525	maduo	Elysee weed	33	17	54
100.6968	34.07575	gande	Elysee weed	27	17	46
100.5947	32.84083	banma	Elysee weed	43	20	50
100.3006	32.81056	banma	Elysee weed	43	20	49
101.8682	35.21703	zeku	Elysee weed	25	17	42
100.3512	34.42458	maqin	Elysee weed	24	17	46
101.8704	35.20139	zeku	Elysee weed	27	19	42
97.91517	35.07525	maduo	Elysee weed	33	17	54
100.6968	34.07575	gande	Elysee weed	27	17	46
100.5947	32.84083	banma	Elysee weed	43	20	50
100.3006	32.81056	banma	Elysee weed	43	20	49
100.5947	32.84083	banma	Elysee weed	34	21	32
101.8682	35.21703	zeku	Elysee weed	25	17	42
100.3512	34.42458	maqin	Elysee weed	24	17	46
101.8682	35.21703	zeku	Elysee weed	25	17	42
100.6968	34.07575	gande	Elysee weed	27	17	46
100.5947	32.84083	banma	Elysee weed	43	20	50
100.3006	32.81056	banma	Elysee weed	43	20	49
101.8704	35.20139	zeku	Elysee weed	27	19	42
100.3512	34.42458	maqin	Elysee weed	24	17	46

97.91517	35.07525	maduo	Elysee weed	33	17	54
100.3006	32.81056	banma	Elysee weed	36	19	51
101.8682	35.21703	zeku	Elysee weed	25	17	42
101.8704	35.20139	zeku	Elysee weed	27	19	42
100.3512	34.42458	maqin	Elysee weed	24	17	46
97.91517	35.07525	maduo	Elysee weed	33	17	54
100.5947	32.84083	banma	Elysee weed	43	20	50
100.3006	32.81056	banma	Elysee weed	43	20	49
101.8704	35.20139	zeku	Elysee weed	27	19	42
100.3512	34.42458	maqin	Elysee weed	24	17	46
97.91517	35.07525	maduo	Elysee weed	33	17	54
100.6968	34.07575	gande	Elysee weed	27	17	46
100.5947	32.84083	banma	Elysee weed	43	20	50
100.3006	32.81056	banma	Elysee weed	43	20	49
101.6953	35.02686	zeku	Tibetan grass type	18	18	42
97.61028	34.07556	chengduo	Tibetan grass type	40	17	54
95.13731	34.09306	zhiduo	Tibetan grass type	45	18	50
99.53025	34.89619	maqin	Tibetan grass type	55	13	58
95.00781	34.24344	zhiduo	Tibetan grass type	22	14	44
97.14006	33.80611	chengduo	Tibetan grass type	19	14	46
95.275	32.90178	zaduo	Tibetan grass type	36	23	45
97.15372	33.84781	chengduo	Tibetan grass type	31	18	51
97.15278	33.84781	chengduo	Tibetan grass type	31	18	51
96.09108	32.32944	nangqian	Tibetan grass type	30	20	43
96.09006	32.33014	nangqian	Tibetan grass type	34	21	45
97.61028	34.07556	chengduo	Tibetan grass type	43	21	49
100.2274	34.48497	maqin	Tibetan grass type	25	19	42
95.00806	34.24333	zhiduo	Tibetan grass type	22	14	44
97.33361	33.37189	chengduo	Tibetan grass type	19	15	45
95.275	32.90178	zaduo	Tibetan grass type	22	14	44
97.61028	34.07556	chengduo	Tibetan grass type	40	17	54
99.53025	34.89619	maqin	Tibetan grass type	55	13	58
95.00781	34.24344	zhiduo	Tibetan grass type	22	14	44
99.18522	34.48178	maqin	Tibetan grass type	46	18	48
95.27431	32.90206	zaduo	Tibetan grass type	36	23	45
97.15372	33.84781	chengduo	Tibetan grass type	31	18	51
97.15278	33.84781	chengduo	Tibetan grass type	31	18	51
97.33361	33.37189	chengduo	Tibetan grass type	19	15	45
96.09108	32.32944	nangqian	Tibetan grass type	30	20	43
96.09042	32.33008	nangqian	Tibetan grass type	34	21	45
100.2274	34.48497	maqin	Tibetan grass type	40	20	49
100.2274	34.48497	maqin	Tibetan grass type	25	19	42
97.14006	33.80611	chengduo	Tibetan grass type	19	14	46
100.2274	34.48497	maqin	Tibetan grass type	25	19	42

100.0631	34.52242	maqin	Tibetan grass type	40	21	50
101.6953	35.02686	zeku	Tibetan grass type	18	18	42
95.13731	34.09306	zhiduo	Tibetan grass type	45	18	50
99.53025	34.89619	maqin	Tibetan grass type	55	13	58
99.18525	34.48178	maqin	Tibetan grass type	46	18	48
95.00828	34.24358	zhiduo	Tibetan grass type	22	14	45
99.18522	34.48178	maqin	Tibetan grass type	46	18	48
95.27431	32.90206	zaduo	Tibetan grass type	36	23	45
96.09108	32.32944	nangqian	Tibetan grass type	30	20	43
100.0631	34.52242	maqin	Tibetan grass type	35	21	45
97.15278	33.84781	chengduo	Tibetan grass type	34	17	56
99.18611	34.48211	maqin	Tibetan grass type	47	19	47
97.61028	34.07556	chengduo	Tibetan grass type	40	17	54
97.15278	33.84781	chengduo	Tibetan grass type	31	18	51
96.09042	32.33008	nangqian	Tibetan grass type	34	21	45
99.18611	34.48211	maqin	Tibetan grass type	47	19	35
100.2273	34.48497	maqin	Tibetan grass type	25	19	39
100.0631	34.52242	maqin	Tibetan grass type	40	21	30
101.6953	35.02686	zeku	Tibetan grass type	18	18	40
95.13731	34.09306	zhiduo	Tibetan grass type	45	18	32
97.61028	34.07556	chengduo	Tibetan grass type	40	17	30
99.53028	34.91286	maqin	Tibetan grass type	62	15	28
99.18525	34.48178	maqin	Tibetan grass type	46	18	34
95.00806	34.24344	zhiduo	Tibetan grass type	22	14	41
95.00828	34.24358	zhiduo	Tibetan grass type	22	14	41
99.18522	34.48178	maqin	Tibetan grass type	46	18	34
95.27431	32.90206	zaduo	Tibetan grass type	36	23	32
97.15372	33.84781	chengduo	Tibetan grass type	31	18	31
97.15278	33.84781	chengduo	Tibetan grass type	31	18	31
95.13731	34.09306	zhiduo	Tibetan grass type	22	14	41
97.14006	33.80611	chengduo	Tibetan grass type	19	14	40
96.09108	32.32944	nangqian	Tibetan grass type	30	20	35
96.09042	32.33008	nangqian	Tibetan grass type	34	21	33
99.18611	34.48211	maqin	Tibetan grass type	47	19	47
100.2273	34.48497	maqin	Tibetan grass type	25	19	42
101.6953	35.02686	zeku	Tibetan grass type	18	18	42
97.61028	34.07556	chengduo	Tibetan grass type	40	17	54
95.00806	34.24344	zhiduo	Tibetan grass type	22	14	44
99.18522	34.48178	maqin	Tibetan grass type	46	18	48
97.15278	33.84781	chengduo	Tibetan grass type	31	18	51
97.33361	33.37189	chengduo	Tibetan grass type	19	15	45
97.33361	33.37189	chengduo	Tibetan grass type	18	15	46
96.09042	32.33008	nangqian	Tibetan grass type	34	21	45
100.0631	34.52242	maqin	Tibetan grass type	40	21	50

99.53028	34.91286	maqin	Tibetan grass type	62	15	57
95.00781	34.24344	zhiduo	Tibetan grass type	22	14	44
97.15372	33.84781	chengduo	Tibetan grass type	31	18	51
96.09108	32.32944	nangqian	Tibetan grass type	30	20	43
100.2273	34.48497	maqin	Tibetan grass type	25	19	42
100.0631	34.52242	maqin	Tibetan grass type	40	21	50
97.61028	34.07556	chengduo	Tibetan grass type	40	17	54
99.53028	34.91286	maqin	Tibetan grass type	62	15	57
95.00806	34.24344	zhiduo	Tibetan grass type	22	14	44
95.27431	32.90206	zaduo	Tibetan grass type	36	23	45
97.33361	33.37189	chengduo	Tibetan grass type	19	15	45
96.09108	32.32944	nangqian	Tibetan grass type	30	20	43
95.13731	34.09306	zhiduo	Tibetan grass type	46	18	48
99.18611	34.48211	maqin	Tibetan grass type	47	19	47
95.13731	34.09306	zhiduo	Tibetan grass type	45	18	50
99.18525	34.48178	maqin	Tibetan grass type	46	18	48
95.00781	34.24344	zhiduo	Tibetan grass type	22	14	44
99.18522	34.48178	maqin	Tibetan grass type	46	18	48
97.15372	33.84781	chengduo	Tibetan grass type	31	18	51
97.33361	33.37189	chengduo	Tibetan grass type	45	20	46
100.2273	34.48497	maqin	Tibetan grass type	23	19	41
99.18611	34.48211	maqin	Tibetan grass type	47	19	47
100.0631	34.52242	maqin	Tibetan grass type	40	21	50
95.13731	34.09306	zhiduo	Tibetan grass type	45	18	50
97.61028	34.07556	chengduo	Tibetan grass type	40	17	54
99.53028	34.91286	maqin	Tibetan grass type	62	15	57
99.18525	34.48178	maqin	Tibetan grass type	46	18	48
95.00781	34.24344	zhiduo	Tibetan grass type	22	14	44
95.27431	32.90206	zaduo	Tibetan grass type	36	23	45
97.14006	33.80611	chengduo	Tibetan grass type	19	14	46
97.15278	33.84781	chengduo	Tibetan grass type	31	18	51
97.33361	33.37189	chengduo	Tibetan grass type	19	15	45
96.09108	32.32944	nangqian	Tibetan grass type	30	20	43
96.09042	32.33008	nangqian	Tibetan grass type	34	21	45
100.2273	34.48497	maqin	Tibetan grass type	25	19	42
97.61028	34.07556	chengduo	Tibetan grass type	18	15	42
99.18525	34.48178	maqin	Tibetan grass type	46	18	48
95.13731	34.09306	zhiduo	Tibetan grass type	45	18	50
97.61028	34.07556	chengduo	Tibetan grass type	40	17	54
99.53028	34.91286	maqin	Tibetan grass type	62	15	57
99.18525	34.48178	maqin	Tibetan grass type	46	18	48
95.00828	34.24358	zhiduo	Tibetan grass type	22	14	45
99.18522	34.48178	maqin	Tibetan grass type	46	18	48
95.27431	32.90206	zaduo	Tibetan grass type	36	23	45

97.14006	33.80611	chengduo	Tibetan grass type	19	14	46
97.15372	33.84781	chengduo	Tibetan grass type	31	18	51
97.15278	33.84781	chengduo	Tibetan grass type	31	18	51
97.33361	33.37189	chengduo	Tibetan grass type	19	15	45
96.09108	32.32944	nangqian	Tibetan grass type	30	20	43
96.09042	32.33008	nangqian	Tibetan grass type	34	21	45
100.0631	34.52242	maqin	Tibetan grass type	25	17	42
100.2273	34.48497	maqin	Tibetan grass type	25	19	42
100.0631	34.52242	maqin	Tibetan grass type	40	21	50
100.2273	34.48497	maqin	Tibetan grass type	25	19	42
100.0631	34.52242	maqin	Tibetan grass type	40	21	50
95.13731	34.09306	zhiduo	Tibetan grass type	45	18	50
97.61028	34.07556	chengduo	Tibetan grass type	40	17	54
99.53028	34.91286	maqin	Tibetan grass type	62	15	57
95.00806	34.24344	zhiduo	Tibetan grass type	22	14	44
99.18522	34.48178	maqin	Tibetan grass type	46	18	48
97.14006	33.80611	chengduo	Tibetan grass type	19	14	46
97.15372	33.84781	chengduo	Tibetan grass type	31	18	51
97.15278	33.84781	chengduo	Tibetan grass type	31	18	51
97.33361	33.37189	chengduo	Tibetan grass type	19	15	45
96.09042	32.33008	nangqian	Tibetan grass type	34	21	45
99.18611	34.48211	maqin	Tibetan grass type	47	19	47
96.09108	32.32944	nangqian	Tibetan grass type	30	20	43
99.18611	34.48211	maqin	Tibetan grass type	47	19	47
100.2273	34.48497	maqin	Tibetan grass type	25	19	42
100.0631	34.52242	maqin	Tibetan grass type	40	21	50
95.13731	34.09306	zhiduo	Tibetan grass type	45	18	50
97.61028	34.07556	chengduo	Tibetan grass type	40	17	54
99.53028	34.91286	maqin	Tibetan grass type	62	15	57
95.00806	34.24344	zhiduo	Tibetan grass type	22	14	44
99.18522	34.48178	maqin	Tibetan grass type	46	18	48
97.14006	33.80611	chengduo	Tibetan grass type	19	14	46
97.15372	33.84781	chengduo	Tibetan grass type	31	18	51
97.15278	33.84781	chengduo	Tibetan grass type	31	18	51
97.33361	33.37189	chengduo	Tibetan grass type	19	15	45
96.09108	32.32944	nangqian	Tibetan grass type	30	20	43
96.09042	32.33008	nangqian	Tibetan grass type	34	21	45
97.14006	33.80611	chengduo	Tibetan grass type	35	22	48
97.15278	33.84781	chengduo	Tibetan grass type	17	19	51
95.13731	34.09306	zhiduo	Tibetan grass type	45	18	50
97.61028	34.07556	chengduo	Tibetan grass type	40	17	54
99.53028	34.91286	maqin	Tibetan grass type	62	15	57
95.27431	32.90206	zaduo	Tibetan grass type	36	23	45
97.14006	33.80611	chengduo	Tibetan grass type	19	14	46

97.15372	33.84781	chengduo	Tibetan grass type	31	18	51
97.15278	33.84781	chengduo	Tibetan grass type	31	18	51
97.33361	33.37189	chengduo	Tibetan grass type	19	15	45
96.09108	32.32944	nangqian	Tibetan grass type	30	20	43
96.09042	32.33008	nangqian	Tibetan grass type	34	21	45
97.15372	33.84781	chengduo	Tibetan grass type	40	20	49
97.15278	33.84781	chengduo	Tibetan grass type	17	19	51
97.15278	33.84781	chengduo	Tibetan grass type	17	19	51
100.1674	33.39586	dari	Tibetan grass type	41	20	47
99.18611	34.48211	maqin	dwarf grass type	47	19	47
97.19367	32.78675	yushu	dwarf grass type	36	18	49
97.12544	32.825	yushu	dwarf grass type	28	20	49
99.21908	34.22739	maqin	dwarf grass type	40	18	49
99.19778	34.49194	maqin	dwarf grass type	41	17	49
99.21908	34.22739	maqin	dwarf grass type	40	18	49
97.12544	32.825	yushu	dwarf grass type	28	20	49
99.21908	34.22739	maqin	dwarf grass type	40	18	49
97.19367	32.78675	yushu	dwarf grass type	36	18	49
97.12544	32.825	yushu	dwarf grass type	28	20	49
99.21908	34.22739	maqin	dwarf grass type	40	18	32
97.19367	32.78675	yushu	dwarf grass type	36	18	32
97.12544	32.825	yushu	dwarf grass type	28	20	30
99.21908	34.22739	maqin	dwarf grass type	40	18	49
97.12544	32.825	yushu	dwarf grass type	28	20	49
99.21908	34.22739	maqin	dwarf grass type	40	18	49
97.19367	32.78675	yushu	dwarf grass type	36	18	49
97.12544	32.825	yushu	dwarf grass type	28	20	49
97.19367	32.78675	yushu	dwarf grass type	36	18	49
97.12544	32.825	yushu	dwarf grass type	28	20	49
99.21908	34.22739	maqin	dwarf grass type	40	18	49
97.19367	32.78675	yushu	dwarf grass type	36	18	49
99.21908	34.22739	maqin	dwarf grass type	40	18	49
97.12544	32.825	yushu	dwarf grass type	28	20	49
99.21908	34.22739	maqin	dwarf grass type	40	18	49
97.19367	32.78675	yushu	dwarf grass type	36	18	49
97.12544	32.825	yushu	dwarf grass type	28	20	49
99.21908	34.22739	maqin	dwarf grass type	40	18	49
97.19367	32.78675	yushu	dwarf grass type	36	18	49
97.12544	32.825	yushu	dwarf grass type	28	20	49
99.21908	34.22739	maqin	dwarf grass type	40	18	49
97.19367	32.78675	yushu	dwarf grass type	36	18	49
97.12544	32.825	yushu	dwarf grass type	28	20	49
99.21908	34.22739	maqin	dwarf grass type	40	18	49
97.19367	32.78675	yushu	dwarf grass type	36	18	49
97.12544	32.825	yushu	dwarf grass type	28	20	49
101.1543	35.30367	zeku	dwarf grass type	20	19	35

Note:The soil data were from the global gridded soil information (<https://soilgrids.org/>).

Table S2. Distribution of collection points in each county in the TRHR from 2005 to 2015.

Year Location	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Sum
Banma	7	10	10	10	11	12	12	12	12	12	12	120
Chengduo	7	10	2	5	11	10	10	11	12	12	12	102
Dari	6	6	6	7	7	9	9	7	7	7	7	78
Gande	1	6	5	6	6	6	6	6	6	6	6	60
Geermu	3	5	6	6	5	6	7	1	1	7	4	51
Guide											3	3
Guinan											3	3
Henan	5	7	6	9	10	9	10	9	7		10	82
Jianzha											5	5
Jiuzhi	8	11	11	11	11	11	11	10	10	9	9	112
Maduo	7	10	7	9	9	3	10	10	10	10	8	93
Maqin	6	7	9	9	9	9	10	9	10	10	8	96
Nangqian	7	11	11	11	11	9	6	9	9	8	9	101
Qumalai	5	11	11	11	10	8	10	11	11	9	11	108
Tongde	7	8	9	11	11	11	12	12	12	11	11	115
Tongren											2	2
Xinghai	5	8	8	8	8	8	8	6	8	8	9	84
Yushu	5	9	11	11	9	9	11	11	11	11	7	105
Zaduo	5	11	10	10	9	9	10	8	9	9	10	100
Zeku	5	8	10	10	10	10	9	9	9	7	7	94
Zhiduo	6	7	10	10	10	10	11	12	10	10	10	106
Sum	95	145	142	154	157	149	162	153	154	146	163	1620

Table S3. Calculation of various indices of MODIS.

Name	Abbreviation	Formula	Reference
Soil-adjusted vegetation index	SAVI	$\frac{NIR - R}{NIR + R + L} (1 + L)$	[1]
Modified soil-adjusted vegetation index	MSAVI	$\frac{2NIR + 1 - \sqrt{(2NIR + 1)^2 - 8(NIR - R)}}{2}$	[2]
Optimized soil-adjusted vegetation index	OSAVI	$\frac{NIR - R}{NIR + R + 0.16}$	[3]
Soil adjusted total vegetation index	SATVI	$\frac{SWIR1 + R}{SWIR1 + R + L} (1 + L) - \frac{SWIR2}{2}$	[4]
Ratio vegetation index	RVI	$\frac{SWIR2}{SWIR1}$	[5]
Difference vegetation index	DVI	$NIR - R$	[6]
Normalized difference soil index	NDSI	$\frac{SWIR2 - Green}{SWIR2 + Green}$	[7]
Normalized difference water index	NDWI	$\frac{Green - NIR}{Green + NIR}$	[8]
Brightness index	BI	$\sqrt{R^2 + NIR^2}$	[9]
Transformed vegetation index	TVI	$\sqrt{NDVI + 0.5}$	[10]
Normalized difference vegetation green index	NDVGI	$\frac{(NIR - Green)}{(NIR + Green)}$	[11]
Soil color index	SCI	$3NIR + R - Green - 3Blue$	[12]
band index	C	$\frac{Band2 - Band7}{Band5}$	[13]
band index	D	$\frac{Band2}{(Band5 - Band7)}$	[13]
band index	E	$\frac{(Band5 - Band7)}{(Band5 + Band7)}$	[13]
band index	F	$\frac{Band7}{Band2}$	[13]
band index	G	$\frac{Band7}{Band5}$	[13]

Note: NIR represents the near-infrared band (band 2 of MODIS); R represents the red band (band 1 of MODIS); Blue represents the blue band (band 3 of MODIS), and Green represents the green band (band 4 of MODIS). $L = 0.5$; in the SATVI equation, NDSI equation, and RVI equations; SWIR1 represents the short-wave infrared band (band 6 of MODIS), and SWIR2 represents the mid-infrared band (band 7 of MODIS).

Table S4. Correlation between grassland AGB and environmental factors.

AGB			AGB		
variable type	variables	Correlation coefficient	variable type	variables	Correlation coefficient
topographical factors	Aspect	-0.01**	MODIS factors	G	-0.4**
	DEM	-0.18**		BI	0.19**
	Slope	0.29		DVI	0.49**
	BLD	-0.21**		EVI	0.5**
	CEC	0.11**		Fpar	0.48**
soil factors	CL	0.26**		LAI	0.47**
	CR	0.14**		MSAVI	0.51**
	OC	0.1**		NDSI	-0.4**
	OR	0.14**		NDVGI	0.5**
	pH	-0.14**		NDVI	0.51**
MODIS factors	SL	0.09**		NDWI	-0.05**
	SN	-0.17**		OSAVI	0.51**
	B1	-0.38**		RVI	-0.31**
	B2	0.39**		SATVI	0.03**
	B3	-0.19**		SAVI	0.51**
	B4	-0.23**		SCI	0.44**
	B5	0.3**		TVI	0.5**
	B6	-0.25**		D-LST	-0.17**
	B7	-0.44**		N-LST	0.01**
	C	0.47**	meteorological factors	AMT	0.2**
	D	0.46**		GDD	-0.29**
	E	0.5**		AMP	0.43**
	F	-0.43**			

Note: DEM refers to the Digital Elevation Model; BLD represents bulk density; CEC represents cation exchange capacity (at pH = 7); CL refers to clay content; SN represents sand; SL refers to silt size; OR refers to organic carbon density; OC represents soil organic carbon stock; CR represents coarse fragments; B1--B7 refer to the reflectance of the MODIS band 1--band 7; C--G represent 5 band indices (Band 2--Band 7 (C), Band 5/Band 2 (D), (Band 5--Band 7)/(Band 5+Band 7) (E), Band 7/Band 2 (F), Band 7/Band 5 (G)); BI represents the brightness index; DVI refers to the difference vegetation index; EVI represents the enhanced vegetation index; Fpar refers to the fraction of photosynthetically active radiation; LAI represents leaf area index; MSAVI represents the modified soil-adjusted vegetation index; NDSI refers to the normalized difference soil index; NDVGI represents the normalized difference vegetation green index; NDVI represents the normalized difference vegetative index; NDWI refers to the normalized difference water index; OSAVI represents the optimized soil-adjusted vegetation index; RVI refers to the ratio vegetation index; SATVI represents the soil-adjusted total vegetation index; SAVI refers to the soil-adjusted vegetation index; SCI represents the soil color index; TVI represents the transformed vegetation index; D-LST refers to the day land surface temperature, N-LST represents the night land surface

temperature AMT represents annual mean temperature; GDD refers to growing degree days, and AMP represents annual mean precipitation. ** statistically significant.

Table S5. Predicted AGB and precipitation

Year	Predicted AGB(kg DW/ha)	precipitation (mm)	Predicted AGB(kg DW/ha)	precipitation (mm)	Predicted AGB(kg DW/ha)	precipitation (mm)
2005	1494.738224	519.3707275	3013.599919	655.6619263	640.4796593	391.2131348
	1535.798812	506.1049194	3202.801209	650.8483276	2829.255163	635.5668945
	1158.690646	474.2471008	3715.879661	778.8861694	2812.086959	498.8676758
	1953.324206	487.3322449	3310.122063	892.0031738	995.3893211	383.9246216
	3329.409711	535.7970581	3169.15064	793.4832764	701.1269462	379.9997253
	3616.491231	568.2841187	3827.042184	684.739502	1232.160749	463.5880432
	1385.948097	491.2850037	4175.382185	749.3685913	3245.599594	795.760376
	2479.209631	541.7327881	2343.272626	652.0726318	3697.554933	756.9298096
	1483.831623	517.0739136	2835.809614	606.1546021	3264.223716	580.2561646
	1958.439261	585.8856812	4505.66821	651.1738892	3176.057064	631.4889526
	3485.709633	580.4309082	3071.540474	601.4497681	3574.141231	683.3186035
	701.1269462	379.9997253	2571.97171	684.5670166	2827.865914	643.3189697
	4810.510734	638.3847046	3453.932575	684.739502	3300.310026	593.0283203
	4224.588933	664.9625244	2926.781382	692.4810791	3575.451664	630.1296997
	4096.918733	660.3842163	4024.785689	771.6637573	3123.634694	580.5592041
	3310.56275	599.9961548	1578.463998	369.5026245	3090.356289	529.6330566
	876.9346891	413.4503784	4294.380468	623.2424927	1349.059177	521.0136108
	701.0553272	409.7695618	2427.02689	653.0394287	2889.685771	575.409668
	508.73923	394.7159119	3271.209993	594.7550049	2891.832057	575.0496216
	3946.222931	513.3067627	2345.962389	553.6801147	2663.293795	699.5179443
	2070.992131	482.4248352	1111.186231	600.5822754	3042.345064	738.2340088
	3610.463714	625.1134644	2920.135609	617.7449951	2964.242015	738.2340088
	3009.070826	533.4439697	2717.98891	467.5601501	3533.81164	821.8478394
	1907.89748	504.6472473	2409.112121	545.8370972	2729.441905	876.8806763
	3641.272905	522.2016602	4514.545858	652.4604492	3774.37288	856.4593506
	3571.428966	532.5932617	2812.086959	498.8676758	4172.537306	891.8583984
	3596.023007	568.2841187	2351.486506	590.637146	4231.359511	792.7633057
	1308.836687	442.5464783	2410.013852	586.7485962	2486.995753	614.9595337
	1833.880498	398.5360718	3672.271376	856.6133423	2829.92901	697.5712891
	1587.787963	395.9150391	4278.251034	853.4588013	4697.590173	540.2008057
	3500.034085	601.4552612	3282.493543	572.701416	709.308094	432.9007263
	4488.454928	599.404541	2230.631823	548.5800171	2635.06499	514.6835327
	1989.211489	607.6919556	3315.765864	602.2575684	3534.510561	730.6923218
	2191.797431	522.9246826	3886.511514	859.6854858	4822.58079	618.4058228
2006	1813.24834	514.3216553	3634.476354	484.4759521	4904.632963	592.2589722
	1822.101099	433.8069153	3842.175197	481.6207275	3532.810832	582.8618774
	2446.550643	410.9983826	3634.476354	484.4759521	3008.395298	463.1409607

3565.09602	456.1170959	4707.849461	478.2059021	5858.387898	511.2420044
3504.283178	458.616272	4707.849461	478.2059021	4092.566025	699.5635376
5084.554314	476.4683228	2662.336151	481.7001953	6627.79467	617.4700317
1178.606731	359.4854431	5093.407618	478.2003479	3083.61306	493.4044495
1218.412351	360.311554	4904.632963	592.2589722	5372.5139	451.9984741
1447.977529	361.2221985	2304.418972	525.258667	2939.449233	501.0418396
1351.112138	361.2221985	3560.890058	444.0838318	3319.113743	466.4873657
4765.38671	530.2787476	4316.648792	480.7287903	2074.25265	468.2831421
4765.38671	530.2787476	2872.512375	483.5078125	2769.821421	400.1243591
2962.14831	432.1742249	4917.193184	561.8190918	1579.12369	413.2289429
2609.005059	420.5856018	2170.447358	512.9087524	2519.080694	462.9478149
3294.781474	450.3654175	1594.171586	549.1306152	2176.678447	462.793396
6228.447538	522.0019531	4864.429878	561.8190918	3818.959892	458.8699341
666.1585371	323.8414917	2708.113793	509.4853516	3662.861613	461.2863464
666.1585371	323.8414917	5816.102606	645.1484375	3895.702344	515.4295654
749.761982	310.7941895	1814.608469	566.1691284	4016.038606	547.6542358
543.4232627	304.690979	2250.665293	572.5425415	3544.562638	547.6542358
3088.087712	419.2067261	1567.725285	571.3723755	4016.253005	696.6888428
2093.214289	380.7434692	1660.413146	573.2419434	6537.816784	687.159729
1284.088375	385.9309998	1736.596268	489.4904175	5219.88083	654.5018921
2213.656589	299.758667	5801.008225	638.949646	2437.892497	468.2692871
4606.44095	479.9211121	4386.488331	539.4706421	3626.926032	699.4216919
6410.875056	523.5773926	4181.415134	503.6552429	3858.108499	443.729248
1608.223308	298.0348816	2373.928275	537.0703125	3000.689173	459.2694092
1298.336348	305.8131409	2233.670867	404.7442627	1594.723443	390.9668274
2658.15738	451.288147	2066.598277	397.2443237	3662.861613	461.2863464
5917.064566	535.4506226	1494.343431	367.3623352	4040.535964	499.8299255
5010.867511	494.3617554	1608.375965	369.9586487	4343.15485	658.12854
464.7842062	306.2455139	1788.645431	366.0089111	3956.587023	682.7108765
581.4770553	330.9963379	4239.090005	472.7141724	4620.382164	728.6560059
1459.714426	440.5323792	2060.755371	370.2278442	4781.650126	728.6560059
1924.220043	453.1327209	609.850598	256.1974182	4930.861709	672.1503296
2011.790973	423.6329956	5562.916811	520.1135864	3092.092442	724.184082
1763.120288	369.5026245	6437.240988	555.269165	4454.090557	604.0408325
6851.312947	540.1896973	5928.535469	525.086731	3242.540593	458.3813782
5807.175512	508.0969238	637.0116153	323.2068176	3246.965599	611.4490967
817.6254468	255.4325714	1224.089162	312.3675842	2347.327739	503.0323792
609.850598	256.1974182	579.3630952	309.3939209	2826.742138	541.946228
722.2037449	280.8694153	3554.220944	410.4768372	2708.113793	509.4853516
1058.332554	356.3763123	4163.301321	473.8553772	4087.912724	453.8693848
2000.437006	254.2597504	2021.466629	355.3257751	2744.292466	498.9346008
1954.151657	298.3074341	1791.314199	402.9981079	4300.070443	718.7561035
1483.992307	309.0111694	2658.15738	451.288147	1677.641059	529.1661377
1883.097713	423.3238525	5956.241239	539.6509399	1889.32417	544.9678955

	3206.882117	644.5861206	1581.517009	296.9681702		
	1953.08091	523.5617065	2612.977356	543.6745605	5489.112616	660.6279907
	1881.045304	498.4861755	5661.289246	445.5147705	3567.195912	704.378479
	3862.494874	510.741333	2550.4218	462.1843872	4262.496909	693.9188843
	1171.441404	444.1733398	3470.090806	494.8379822	3322.105008	504.2371216
	1409.178796	458.4786072	5190.568103	651.4440308	3628.36768	454.3027649
	1419.946947	438.3283081	2827.839171	631.8214722	2210.633315	528.6429443
	3920.223691	537.5394287	4199.637235	583.0593872	5035.284809	492.5591736
	2668.579342	541.5020752	2897.247166	615.6720581	1708.032776	458.3615112
	3569.27664	584.9431763	1589.48267	519.5671387	1768.076662	442.8011169
	1019.492839	400.3987732	1799.003302	564.2399902	2612.977356	543.6745605
	2066.297317	435.7012329	1789.470986	527.3380737	3792.172586	640.6373291
	1075.992267	403.3083191	4762.46622	493.5385742	4146.056019	653.3438721
	4510.837527	534.3013916	2777.395228	456.5803528	6047.768572	714.59729
	2522.724664	503.2304993	2426.560946	573.5664673	5173.842581	703.7675171
	1363.807544	404.890564	2283.8522	517.9561157	6577.82396	720.762207
	6331.27421	679.4221802	2702.619091	537.9719238	1378.604698	513.9371338
	7342.181192	677.4465942	4892.783188	654.6132202	1814.978865	510.9573059
	1191.623972	395.2850342	1337.211243	594.9284058	1378.604698	513.9371338
	460.3623152	400.6281738	1758.406456	596.9638062	1853.446731	435.3311157
	999.6998175	392.6618652	3996.925431	644.2877808	1257.391974	444.016571
	2552.213033	579.1487427	2261.45924	511.789093	2393.103286	595.7428589
2007	3464.130517	618.0231323	3566.810167	562.0539551	5154.173623	590.194458
	2461.795008	629.6480103	4775.600077	638.4296875	4150.09012	645.409668
	1362.985104	438.897583	2993.28882	770.9267578	2667.322789	735.4325562
	1685.846911	455.9042664	4714.512161	716.5560913	3002.530959	738.7047729
	1665.795752	343.3474121	4137.755308	547.6716919	1661.950228	340.1052246
	6439.964847	635.9570923	1232.6221	320.716156	2058.836609	353.6201477
	4263.054543	688.789978	3756.95196	546.920166	5265.89618	691.3017578
	2410.119097	661.666626	2995.893809	583.3825684	4256.209035	445.1827393
	3926.639678	676.2260132	1239.847955	401.2361755	3244.159603	485.4346313
	2300.114185	446.3292236	2127.92952	567.7952271	2109.613484	455.9745789
	1620.608624	341.2939148	2944.880048	530.949585	2434.721715	517.3726807
	1794.03609	342.0568848	625.2882472	344.3737183	3907.70092	653.3438721
	1287.89703	587.1696777	684.2130805	343.3304443	2923.084735	745.8053589
	1588.41551	598.0733643	5215.53801	666.3442993	4510.459928	724.00354
	939.6348943	567.7952271	1227.849723	427.6160889	3986.658797	735.1182251
	1560.479645	419.4890747	823.7271943	427.9157715	6644.236583	720.762207
	7051.273649	694.7435913	4821.207731	576.5457153	1267.327678	444.3119507
	749.3538207	345.5281677	2368.876346	429.0569153	4307.089962	655.4621582
	1245.310337	464.2201233	2568.233243	404.6152954	3580.059233	509.728241
	1662.998191	341.7326355	3379.997022	674.4674683	3682.060571	583.0593872
	939.6348943	567.7952271	3337.938988	665.5708008	2679.743591	588.3331909
	588.5531698	392.7366943	5078.451232	697.5982056	2942.558251	596.4552002

	3033.376722	667.3212891	4726.759183	676.2574463	2261.45924	511.789093
	3970.590535	634.8388062	839.1576925	341.3930969	5227.901542	653.1254883
	4150.09012	645.409668	625.2882472	344.3737183	880.6251473	376.184021
	4557.085334	736.4408569	2635.06499	514.6835327	1409.006674	378.2613831
	4396.952169	716.5560913				
	1963.385388	447.5569153	2795.605813	381.1653748	1427.675474	520.1295166
	1528.473168	419.4890747	2931.566014	514.576416	2606.270828	610.399292
	2108.890099	471.7907715	3314.270137	634.7966309	3066.676031	713.7856445
	4028.29315	484.3494873	1829.312165	550.0510254	4787.65275	667.6316528
	1472.042526	426.9494934	1273.577372	553.0663452	3476.033672	613.9732056
	1606.020047	441.8414917	912.0720224	517.498291	5884.221285	557.0432129
	2414.885386	502.2912598	1574.080773	487.3503113	3143.499775	615.2161255
	2789.329265	537.8149414	1561.89907	487.3503113	2977.816332	576.0178833
	3615.214186	539.4654541	5302.578757	600.9118042	2854.43717	614.3699341
	1922.724498	394.2398376	4846.060832	600.9118042	3591.29469	618.9258423
	2117.205287	432.7813721	5311.085158	579.1335449	1629.300219	604.675354
	3593.187191	608.4832764	1596.393866	383.9763794	1983.31519	635.105957
	4216.974349	496.1033936	2326.490389	379.9700317	2134.27618	583.8405762
	2510.218573	477.8588257	2695.855119	393.8326111	2201.391314	588.3518677
	3626.654456	474.9475708	912.0720224	517.498291	4650.340938	605.5949097
	1563.643251	398.8275452	604.0080627	310.7766418	2259.677302	568.1225586
	4425.237142	608.4832764	3511.862408	674.3015137	2440.39677	702.6241455
	1751.114054	517.498291	5041.59974	658.5535278	2009.115751	684.1715698
	836.9138627	353.3545837	5406.010538	642.2284546	5628.444024	686.666748
2008	622.044268	356.0162964	3442.954994	645.4325562	1823.34546	697.1140137
	4395.019356	594.9351807	3530.233198	640.6580811	1823.34546	697.1140137
	6897.298604	607.0678711	6326.800537	678.4151611	1997.321139	523.0956421
	6836.027752	600.2261963	3525.355305	556.7574463	2959.648979	673.7339478
	1009.115714	321.0990906	2879.847579	672.9406738	1905.136034	365.1811523
	1094.535778	322.8182678	7071.553495	683.5513306	2865.379085	507.0002441
	509.6950335	311.4904175	1754.394551	530.0432129	2230.504723	506.5472107
	648.585965	309.2572632	1909.838682	539.4735107	2489.189324	490.1532898
	3462.149041	554.8996582	2583.81728	531.4111938	3331.890768	469.3132935
	3186.343381	588.0395508	2165.552946	531.2142944	1546.070798	420.3421326
	2522.236936	583.1207886	3866.283069	667.2427368	2732.515933	505.3034973
	3344.91252	448.4681091	2285.739799	598.6391602	1687.622437	397.1858215
	1480.946237	481.1562805	3198.988263	630.1127319	5432.531065	601.6749268
	3097.690525	381.8927307	4795.384668	668.2039185	5270.439723	597.7762451
	4507.494908	570.1529541	3527.647338	719.1536255	3954.963817	553.9833984
	5400.925702	583.4039917	5384.312067	676.6212769	638.313273	321.3121643
	5140.319282	560.4509277	4900.751927	667.2526855	1512.454936	322.6444702
	4720.393282	616.6896362	6818.323755	664.6752319	853.6673853	312.3903503
	2448.911831	591.3833008	6374.783073	685.8082886	4686.754967	543.6195679
	3626.153277	598.2180786	2037.269026	695.1994019	2384.865879	484.1136475

	5064.389634	602.1943359	1555.020297	509.5377808	2134.334005	504.7408142
	1787.613781	523.2486572	1562.866379	520.1893921	2056.383696	380.2616272
	3837.961665	632.5402832	3501.712768	565.3322144	3498.122542	683.1116333
	1574.080773	487.3503113	1899.169149	542.3154907	2959.74574	596.2042236
	4577.024212	582.722168	2551.404079	538.0128784	4892.777338	657.1652832
	926.206615	352.9895935	3142.06391	643.3963013	2553.410243	686.7666626
	2654.083533	353.3545837	2816.435296	679.1834106	2418.245341	684.8115845
	1192.852783	351.4290771	3817.696247	694.6522827	4826.209584	643.4158936
	1395.809498	389.3469238	5242.341385	664.6752319	1263.487372	432.1824646
	2534.825065	324.3730469	2915.222277	698.8087769	2984.844122	625.4395142
	2008.108081	378.8790894	2006.405051	698.8087769	4342.403185	606.0733643
	4219.012971	686.6057129	2878.069521	602.9475708	3674.266808	601.5689087
	3768.841496	643.5641479	4731.415147	658.5535278	4012.535482	683.1116333
	3167.31838	716.593689	2427.02689	653.0394287	2443.688126	751.9395752
	2767.40445	580.0125732				
	3279.495706	673.2567139	2522.984195	713.6210938	3009.760036	757.0627441
	1918.113782	394.3920288	2937.388691	644.291748	3642.206857	725.3291626
	2134.1347	520.2265625	5440.800934	779.3911133	4860.966191	720.9538574
	1490.706228	489.694397	3642.348864	825.3088379	2919.996128	846.1868286
	1649.902377	498.415741	5895.870781	804.5491943	3056.275697	667.234314
2009	1667.862874	483.5700378	2729.493699	808.4346313	3391.649552	658.7260742
	2971.435093	524.3197632	6261.06166	828.4644165	4617.278135	648.5539551
	3968.371777	525.8130493	3737.457019	795.8416138	3258.047428	799.87854
	2582.932416	548.0203857	2832.516781	627.2692261	4135.847657	694.6280518
	1234.100857	432.7188721	2231.20073	546.6543579	4332.308935	623.5441284
	2295.86501	498.021698	2262.493841	546.7905273	3518.559654	605.1843262
	1382.018838	438.5982971	2403.518239	623.7972412	2054.18864	566.7530518
	1315.399417	435.1880493	2617.566586	627.9107666	2482.478857	550.0925903
	3182.909587	575.053772	2816.353915	658.225647	2457.283534	563.8597412
	2325.21814	521.3665161	4039.9125	720.9538574	2539.157744	606.8366089
	3539.521988	519.5446777	3180.906554	843.1019287	3868.462687	655.4414063
	1725.622344	600.5822754	4924.326557	733.0764771	3849.064031	657.2376099
	691.9404363	482.3800354	3659.547783	671.1212158	3849.064031	657.2376099
	5377.862473	646.5491333	4135.847657	694.6280518	3009.999418	679.921936
	4365.299457	642.7000122	6206.101566	623.5878906	2394.971719	613.3270874
	4563.251882	592.7345581	3715.419224	680.4510498	2685.834538	640.2991333
	6764.135737	610.5093994	3387.82782	653.0513306	1996.900289	523.0956421
	1256.723449	459.6973267	3576.101773	715.7276001	5174.358677	615.5549927
	601.6986907	461.1205444	2084.795337	595.0497437	2888.82336	417.9342651
	2017.193185	432.9204407	1932.970219	607.0455933	686.7690843	482.4422302
	1694.460707	431.723999	2102.284902	551.739624	3992.946817	738.6154785
	931.9477627	423.3287964	2745.70262	560.6884155	3653.234662	801.9102783
	933.213387	433.2407837	5137.299869	634.7844238	3941.963122	629.4086914
	3996.765126	609.4898682	2278.703887	679.5809326	2896.44714	650.7851563

	3581.822818	607.4056396	5031.557238	647.7270508	2303.433954	607.2676392
	3629.699825	630.326355	3028.607689	567.9156494	3109.92658	700.0879517
	4029.904949	487.6088257	5141.295961	759.3180542	3626.541593	655.692749
	2406.010791	545.593811	2154.124415	652.5585938	4436.031402	776.2104492
	3950.187024	421.4816589	1649.295052	651.7206421	6025.947816	828.4644165
	4714.227517	620.2739868	1687.674736	654.0019531	2878.162848	630.4581909
	5791.031808	607.9168701	2719.24533	620.6204224	2878.162848	630.4581909
	3723.293788	589.9605103	5391.110899	746.3612671	4641.941042	647.7270508
	2744.084734	419.3299561	2098.995271	525.3035889	4680.927283	733.4636841
	4567.488511	420.2712097	2695.972445	525.7765503	2450.717707	652.9293823
	3620.188167	616.651123	3515.771649	464.2765503	2719.24533	620.6204224
	2394.971719	613.3270874	1880.357188	315.699585	3112.068315	487.0744934
	2879.783758	693.9691162	2290.240863	480.9501953	778.5026997	290.3171082
	825.7012584	425.5112305	1730.610575	415.5719299	5277.54901	618.6328735
	1635.606481	615.9005737	2340.289346	513.9644775	5821.833041	653.4656982
	1996.900289	523.0956421	2915.85991	517.4185181	3815.378828	648.3487549
	5174.358677	615.5549927	4205.994762	530.6428833	2100.808413	523.8533936
	4581.357472	615.3270264	4247.588871	561.4997559	4374.449411	609.3531494
	955.5454803	480.9605713	3244.644672	575.053772	4555.115486	600.5630493
	4794.341885	616.31073	4451.856607	537.4783936	1111.186231	600.5822754
	731.1404681	484.5325928	3294.223001	419.5691223	3119.430173	364.747467
	1211.891888	514.8742676	4014.602988	433.3969116		
	1898.650011	493.0342102	3226.116316	649.7907715	2423.028427	422.5329895
	2686.803427	429.3529968	5554.863946	618.1281128	2602.373236	469.5094604
	4451.633869	427.9467773	5780.560053	489.1512451	5265.331807	553.4671631
	1907.645098	403.9212341	3881.87006	560.6026611	3709.32752	500.2646179
	3591.071988	466.8246155	4261.409135	481.0480042	5354.788	541.0948486
	4844.218408	469.612793	4596.198674	496.3931274	2051.608089	363.9388123
	1777.101132	368.7461243	3681.678598	500.0875244	2022.11839	362.6859741
	3261.006808	403.7774658	3067.731239	557.6793823	3875.375336	487.9589844
	1967.686686	370.3890991	3090.040402	590.206543	3211.40032	523.0136719
	1728.292507	368.4541321	3000.804982	580.7806396	3621.438006	538.4436035
	4865.14598	539.4706421	1574.633911	516.588562	3103.615405	485.7859802
	5232.789775	436.013031	3329.420684	553.7712402	3841.589252	548.8772583
	4558.899631	420.6364441	2618.574858	649.8892212	2593.887446	469.5094604
	864.8462965	338.5408325	4397.101966	683.9651489	2636.603372	462.5219116
	839.5882828	340.0117798	5223.071311	683.9651489	4899.974738	550.3930054
	4007.242618	538.9005127	1714.808051	523.4407959	5410.794661	527.6998901
	6552.032929	561.4165039	1985.015985	525.7765503	1032.027415	338.3036804
	3861.524087	476.556427	2141.263783	480.3381042	1449.349466	385.6897888
	6691.230356	477.2903748	2882.291004	487.4779358	2409.087656	395.7871704
	6176.229317	507.0261536	3262.19751	533.616394	2593.887446	469.5094604
	3782.480028	508.8555603	2953.779081	536.869751	4142.711765	611.8282471
	1820.125728	457.5506287	2439.793859	542.0758667	4254.347955	625.2122192
2010						

	2198.407554	487.6047668	3383.150092	522.7700806	3147.508009	707.6310425
	1923.604659	503.1116943	3412.334509	705.7303467	2596.213192	511.4908752
	2773.973425	398.561615	3306.020899	529.4405518	3015.460198	535.086853
	4845.536318	497.5168152	3881.87006	560.6026611	2159.170249	495.7576904
	5834.523445	508.8865967	3867.291829	531.776062	2768.772537	482.5857239
	6109.716796	545.2685547	3592.411301	494.0158691	1952.50736	493.943634
	3075.658963	536.2799683	4770.509664	606.0733643	2733.052135	520.1786499
	2723.141664	396.8822021	2177.438012	543.371582	3312.21164	502.6997375
	3028.482792	495.7574158	1731.00449	586.0554199	3312.21164	502.6997375
	3032.890772	499.9919128	4145.167101	563.8890381	3574.119833	519.001709
	3032.890772	499.9919128	5501.544619	521.6065063	2988.277974	531.6247559
	3180.205232	559.7497559	4357.13511	490.627655	4773.969891	624.5822144
	1882.842012	490.4353638	2313.592453	586.8519287	4805.501549	642.895752
	1920.357588	499.0232239	1666.145387	536.291687	4887.42661	626.3632813
	2636.603372	462.5219116	2115.284339	609.9052124	4515.080415	644.9797974
	5345.512173	556.5084229	3009.800895	615.1702271	4741.561149	595.5256958
	4283.65266	550.3930054	1677.641059	529.1661377	4627.931645	604.9868774
	5323.252597	503.9785767	5625.217178	639.7017822	4901.902041	606.9954834
	2177.006728	338.5408325	2762.510523	467.5601501	3183.35779	614.4419556
	1375.483963	336.73349	4053.247477	630.574707	5119.144282	633.010437
	904.7223088	362.9156189	2909.747313	562.1502686	3139.376955	616.1130981
	2762.444844	349.0975342	2642.070387	526.4685669	2719.828926	617.0089722
	2522.964141	397.0753784	3368.453691	417.1106567	3611.838622	665.6869507
	5785.109791	675.7747192	2492.863355	416.87854	2812.177159	439.473999
	3248.126218	647.8711548	1463.86897	393.2408447	1979.513842	372.4204712
	5770.867727	595.5256958	3017.149039	437.2796631	3724.174875	634.0810547
	3641.174424	564.8779907				
	3999.39453	673.0574341	2811.34365	673.0250854	1270.50942	436.7063293
	2804.246751	632.9031372	1457.685311	576.2520142	1660.648529	366.138916
	2822.897739	575.6697388	2832.583272	612.1142578	879.3883362	416.2446899
	2328.232701	480.9391479	4673.797395	782.9263306	3898.253352	805.6934814
	4983.617609	465.8595276	2825.982043	834.3703003	4555.870329	748.5214233
	1655.329918	396.9292908	5423.286601	809.7485962	4053.247477	630.574707
	1812.877765	415.0507813	2745.646165	813.5392456	1993.014408	517.1536865
	1657.775269	395.4736023	4677.355402	839.946167	2816.038038	499.4000244
2011	2306.419235	500.2331543	4966.120346	839.946167	2140.413233	514.2880859
	3194.105393	544.1958618	3937.959958	800.7932739	4099.101381	620.8505859
	1127.694177	365.1731567	2016.282742	610.5524292	3230.0994	686.843811
	2446.360309	401.4272766	1537.972962	487.905304	3513.402351	596.3745728
	1345.679153	369.4967346	3093.28262	582.0365601	2403.900052	604.9578247
	3174.777167	646.6668701	3239.370969	600.1751709	4517.645693	778.8295898
	3636.913488	456.0377502	3291.80135	854.989624	1990.650417	498.2687683
	3194.645813	524.0961304	3094.074349	599.0600586	3203.114786	586.3708496
	624.3724341	378.4753723	4918.774716	543.6954346	4446.293156	730.550293

754.6320013	378.736908	3255.117631	569.7220459	2972.056387	609.9865723
4051.667237	657.24823	4736.488354	632.8482666	4209.522269	597.3848877
6096.042593	651.9677124	5846.030372	735.4421387	1771.908615	674.2342529
5238.087011	671.5396118	3890.276509	720.6133423	2539.834974	615.7559204
3494.130152	596.6053467	2606.271666	552.3671265	3342.265238	636.9329224
810.4466181	385.5507507	2991.372261	531.7664795	1945.01488	607.9084473
400.1735862	361.3397827	4311.121799	594.628418	1015.02248	399.1729736
1422.957472	367.0894775	4557.694619	555.0743408	2309.172039	354.9204712
703.0896242	353.6461182	3941.764063	632.8482666	2964.775751	464.4750366
936.8271092	361.0743408	5435.291463	763.8570557	4188.359547	582.2809448
5315.376972	567.7153931	1999.360382	635.4523926	4365.556121	818.2539673
3741.085197	593.7250977	1945.01488	607.9084473	4471.746689	730.0842896
1897.597113	441.8323669	5349.489882	753.7861938	1993.962563	515.8479004
1976.912405	480.379303	3727.015641	487.1690063	3190.272791	858.3588257
2177.542289	503.0392151	3082.844556	558.6699829	2607.892567	596.9962158
2732.512284	369.5729065	3255.19193	631.6738892	2565.546139	587.9032593
5899.206976	597.996521	4317.99217	768.8477173	3268.401479	805.0955811
3868.017025	656.1183472	2686.907777	615.6337891	3173.768132	551.3761597
5025.761412	628.5634155	2695.678912	671.7163086	3569.492201	543.5001831
2774.796462	500.1523132	1991.435271	340.8534851	2097.131196	607.9887695
1720.492444	368.4534607	2421.700285	453.8400879	2809.374939	569.5710449
2597.063254	565.3164063	2766.194642	448.0523376	4136.084035	575.9174805
2238.232557	566.7493286	2893.08643	496.3751831	1827.069212	586.3995361
2238.232557	566.7493286	4095.348859	544.6087646	2174.688145	579.3662109
3163.934371	670.2189331	1396.603838	364.924469	2962.082173	583.7608643
2994.258686	629.3490601	1327.138386	368.0622253	1961.121576	586.6585083
496.1479883	355.8174744	4003.69377	633.6595459	1961.121576	586.6585083
1787.158809	550.0222778	4087.874079	482.0250549	2810.194987	635.6899414
2686.366384	524.0961304	3581.865988	578.743103	4783.613831	524.5350952
2717.98891	467.5601501	992.4259781	377.5324097	4454.061277	579.5415649
4286.971248	674.3502197	6740.102714	682.7905273	1925.408506	367.5460815
4286.971248	674.3502197	5824.267614	659.4483032	2442.302556	548.3360596
3556.888044	588.8300781	647.6599842	387.0411682	1349.75198	417.0799255
624.3724341	378.4753723	1963.903564	367.5427856	1619.542777	310.7489624
789.1794769	378.5418396	3369.913889	529.928833	2575.556219	367.6393127
1935.930262	381.7797852				
2089.213322	336.9482422	3572.820659	758.4125977	3415.871513	664.4147949
2775.154003	610.9005737	4077.430748	771.5241699	3284.347993	484.0772705
3999.39453	673.0574341	3849.146988	735.3140259	2546.413369	689.4345703
5441.903853	749.2268066	3106.564474	634.3449097	2016.282742	610.5524292
2575.299361	459.8435669	3136.711407	713.4975586	2497.707106	526.1359863
2432.582657	499.7518616	3466.467916	628.8552246	3146.757957	544.5632324
3796.853419	493.1864929	3259.892511	671.7025146	3153.159657	565.9604492
4463.861695	510.5510254	4451.623309	624.5916748	1591.680324	392.2952576

1757.252157	456.882843	1798.10599	581.6300659	3918.158093	620.7612915
2545.852241	542.3729248	1819.810324	575.6886597	3441.895455	620.9862061
4257.707281	570.1697388	2024.200254	640.9703979	4688.402047	627.6386108
1109.380471	391.616333	2436.678801	634.0673218	1879.914834	408.0526123
2375.623794	426.4118347	2537.94842	633.8235474	3495.100635	581.4811401
1377.099332	396.5507202	3122.277015	649.5540161	4247.977913	618.2456055
1110.741118	395.7168579	2460.43344	651.8416138	3893.317385	618.9920654
3423.129629	632.7649536	3264.679552	701.8900757	2075.106103	421.422821
4533.317076	525.8585205	3612.892871	744.187439	2187.713478	619.5726318
2875.964025	508.4825134	2915.220639	793.2081909	622.4978513	394.9793396
4184.066436	504.6490479	5115.595976	765.3773193	2802.010986	604.4663696
5468.928788	644.4439697	5352.740632	812.2626343	5068.287726	657.1105957
5565.731124	661.6398315	5536.569589	812.2626343	4218.971482	608.715332
4250.81756	592.8766479	4412.671139	761.4928589	2425.044663	419.9893799
6477.209958	671.9812622	2348.843804	637.5087891	1166.764712	457.3904114
1779.780809	420.901947	1364.512997	555.4320068	4423.089165	739.9827881
616.779955	422.7440491	1648.681393	565.4897461	2271.322424	573.2959595
560.3397703	399.4674072	1634.277073	565.6919556	4070.365663	746.2458496
1976.242297	408.1721802	2695.956703	646.5944214	2703.37199	659.9398804
724.0845888	392.8936157	3808.266477	669.0859985	1818.113448	584.4244995
4635.764574	575.3532715	4028.41833	757.4224854	2636.263857	564.3056641
5358.538657	613.3716431	2460.376371	679.1342163	2460.43344	651.8416138
2290.969802	505.1305847	3321.30866	628.9649658	4063.830548	677.1864624
2610.191415	570.1189575	2708.860581	677.4400635	3530.936943	663.2012939
2539.878471	422.0072937	3233.662864	647.460022	3727.496515	772.411377
4566.5858	598.6547241	3515.788327	664.6651611	4781.627362	741.8404541
4706.288691	612.4195557	5163.824002	733.697998	3055.666697	633.9938354
3626.103843	589.5500488	5312.22134	758.9840698	2906.235722	642.5786133
4881.506003	635.5791626	2317.03741	671.5812378	2769.355359	648.914856
2604.407741	611.8840332	1862.355871	710.4959106	3904.884817	746.2458496
2512.218745	550.5741577	3285.109347	672.3996582	2939.413484	823.9734497
2437.980156	420.588501	3801.542549	687.2824097	3136.711407	713.4975586
2821.60659	617.0609741	2354.70224	714.7244263	3663.050365	719.697998
2187.713478	619.5726318	3123.630223	649.3498535	3922.573549	642.791748
3145.202196	676.1826172	4386.999848	733.697998	3738.192863	711.5189209
3010.602509	667.7514648	3773.318356	783.7741089	4468.399428	702.0456543
3420.487841	591.5934448	1960.954432	739.3341675	4304.194625	690.140686
2857.559357	574.6343994	2453.024208	747.0783691	3696.434243	701.3178711
2650.450202	514.6835327	1788.45248	745.4989624	4448.020588	674.55896
5388.3765	634.2377319	2659.58922	747.7147217	5177.256809	740.8403931
4702.245739	621.4511719	1971.616617	642.4840698	5457.850135	740.8403931
5388.3765	634.2377319	4717.511379	744.4341431	3038.359186	745.4418945
822.2655942	348.6730652	4502.461947	424.1095276	3728.084202	715.1906738
2096.692218	479.9938049	3679.000708	447.227478	2968.818749	826.3596802

	2000.629113	419.1314087	1786.247474	379.2911072	3119.399113	651.4838867
	2357.831063	434.9237976	4078.983406	711.6328125	2909.052831	712.9503784
	2857.559357	574.6343994	4166.489488	651.9214478	2392.112379	806.9675293
	1763.120288	369.5026245	5528.523067	471.44104	2470.706002	549.9317017
	1764.145251	508.4985352	4496.871226	500.9762268	3636.278349	542.1060181
	3320.980681	611.8796997	3420.19983	477.7811279	2179.978663	542.0023804
	2176.407678	399.7361145	2124.263066	454.3167419	3398.901292	538.4354858
	2552.378869	462.5219116	1451.016753	331.2242737	2819.279104	540.9210205
	2584.048999	379.5107422	3851.238731	510.8357544	3478.744876	596.6326904
	1913.107188	362.5263367	4084.420356	516.6132813	4716.861644	597.9698486
	5020.865958	372.8979187	4084.420356	516.6132813	4479.588243	625.3953247
	1344.074438	308.750885	3250.127767	578.0202637	4556.030151	557.2893066
	1493.583268	333.2406311	3140.619481	564.0600586	2741.949282	588.1812134
	2350.084347	390.0686646	958.4625038	292.6213989	2589.959819	585.2494507
	2303.091592	392.7828064	1800.464427	500.9586792	2741.949282	588.1812134
	4386.25578	422.0614624	1257.213675	457.3600159	2108.929715	463.6526489
	4733.115728	361.8088989	3323.432711	417.8225403	3921.891434	561.0527344
	1055.303964	294.3840942	5647.104909	498.2397461	3616.403382	630.5686646
	983.7491852	294.0315552	2493.757838	263.2424011	3129.491707	723.3968506
	1882.378359	308.8328552	2297.529606	329.254303	4390.634112	639.4326172
	1042.046192	296.7392883	2964.775751	464.4750366	5179.326033	508.6281738
	4794.446891	496.3208923	2501.442966	686.0522461	3469.856825	525.295166
	5446.026003	499.8864136	4815.738837	649.1752319	3804.187645	630.4009399
2013	5663.521102	543.1051025	2514.564976	481.0381775	2918.133633	610.8453979
	7438.002595	552.0811157	3185.062784	650.0155029	2560.370217	536.8887939
	1606.469637	320.4765015	3969.725786	623.0950928	2960.247268	538.9257813
	1074.757852	323.867218	3596.069645	630.5686646	5082.144321	554.4710693
	2410.545159	309.5396729	2629.874949	726.1413574	5071.104964	519.3132935
	1824.122562	311.3738708	2690.745157	548.7102051	2569.966269	596.2275391
	738.1750852	292.1281128	3908.959038	541.3612671	2844.458736	606.5343628
	1824.122562	311.3738708	3130.320699	541.9440308	3163.236041	609.958374
	1418.480963	297.1137695	2927.679095	513.4592285	3381.150968	609.414978
	3890.758422	472.2533264	2989.14641	582.4907837	3650.666307	611.5922852
	4987.892688	460.6096497	3857.807933	508.5434875	2296.926938	589.8579102
	6215.428178	499.4158325	4298.517546	585.4961548	1824.656115	365.5781555
	4091.929887	450.3835754	4202.06763	558.1778564	2663.603452	667.6057739
	1727.083384	410.5696106	1700.446639	491.158783	2270.926689	250.3731232
	1304.301338	469.9353638	2941.225302	474.3776245	798.1348482	254.9661102
	2566.212717	331.0860291	1665.028209	488.6616516	2475.893854	520.1467285
	2819.279104	540.9210205	1550.800901	445.5839539	2348.843804	637.5087891
	3275.684719	636.1032104	4529.700309	461.3793945	2294.132609	359.0986328
	1895.464456	472.6832886	2722.604424	494.0712585	1732.764654	313.1139221
	3027.66332	552.4296875	2636.732269	330.563385	4701.470353	383.9818726
	2989.14641	582.4907837	6058.265406	525.4923096	2110.270538	364.9069519

	3312.788579	559.5175781	1925.72523	342.9372864	4231.87147	506.4485168
	3238.544478	606.5343628	2057.579978	484.3839417	2363.168673	464.4750366
	2766.776257	568.5539551	5084.865944	643.0556641	3770.31203	507.7445679
	2098.258222	643.3815918	2618.726662	609.7295532	5778.392666	523.3696899
	797.7915702	298.7559509	2296.926938	589.8579102	4303.95744	479.8575439
	5096.664483	637.3032837				
	3233.129538	679.5748901	2968.041538	587.4242554	2173.966757	484.74823
	2384.497605	417.3962097	3599.347711	613.5913086	1795.514207	496.728302
	1736.596268	489.4904175	929.7680719	342.266449	1808.482509	496.6214905
	2376.26001	585.6074219	2662.18365	566.5366821	3259.747683	618.4908447
	2152.106634	544.65802	2877.987384	528.524353	3315.897945	622.8165283
	986.7309095	296.319458	2574.686114	478.8855286	2759.729065	633.7468262
	2392.080484	571.2277222	1443.536222	431.2506714	3069.725758	668.0814209
	2355.040077	450.3274231	3942.994368	521.5661011	4053.442741	779.2977905
	2510.815378	423.8169861	1072.188099	433.1319885	3250.619957	904.9210815
	2149.302403	418.9737549	1520.654871	434.9227295	4262.738419	793.7054443
	4308.55951	434.5342712	2329.763824	469.8653564	2672.984189	676.5375366
	1436.552089	374.2736511	1573.757861	436.9129028	3265.033302	700.6334839
	2205.227046	390.6344604	2302.191628	378.6685486	4050.391087	634.7423096
	2380.931992	370.3499146	2642.070387	526.4685669	3219.976575	678.998291
2014	3511.608104	471.5272522	2672.764767	885.4597778	3506.017191	670.3974609
	3928.192786	493.9429626	2324.442054	527.187561	2898.955606	665.9820557
	4281.276675	491.0727234	3820.695152	833.9017334	4108.419544	802.1125488
	3422.806905	448.1541748	4359.855908	799.5639038	3466.31739	784.9901733
	2648.942528	435.889801	4349.066432	779.2977905	2924.268751	602.3389893
	3371.350068	432.9024353	2881.293094	907.9581909	3124.898222	556.3215942
	1635.392365	360.4409485	2487.020606	670.1282959	4771.044079	693.5760498
	1712.645383	359.4419556	3006.993021	661.295105	3783.963571	648.3158569
	2463.831793	379.6952515	2787.007531	661.1873779	2216.538508	731.1636353
	1518.380677	363.4547119	3792.472275	821.0463867	2728.054451	677.6035156
	1715.608117	363.6096802	4093.671559	828.1882935	2916.272405	665.9820557
	4050.492502	567.5611572	3452.02451	637.5570679	4670.310416	833.9951782
	3891.728165	579.201416	3265.033302	700.6334839	2846.610634	670.5938721
	3183.7785	450.7710876	3879.213766	634.9004517	3024.432907	668.6193237
	2533.79964	526.4685669	2979.864373	675.2018433	2695.678912	671.7163086
	3213.41568	540.355896	3145.78399	645.5705566	4368.219801	816.0332031
	1072.188099	433.1319885	2129.733015	523.4124756	2307.144293	566.215332
	1780.865929	433.5471497	2451.576109	520.0662842	3394.476829	492.1672668
	939.0450719	434.4341736	2297.473342	527.7451172	1980.110688	536.1378784
	823.5070633	371.5352478	2827.970713	596.6723022	2686.366384	524.0961304
	991.3502056	373.9647522	2174.984354	589.272583	4305.473668	794.0094604
	1960.857032	356.7543945	2297.181632	588.7799683	4732.539229	863.925354
	953.5241054	348.008728	2443.434222	659.9842529	3938.916642	823.2260132
	1254.472174	356.7033997	2783.882514	661.3166504	2406.181819	678.079895

	870.5413263	347.4068604	4075.994935	666.8692627	2854.11841	674.4385986
	928.0453278	341.0230713	3316.247994	702.8435059	2406.181819	678.079895
	870.5413263	347.4068604	3121.139219	756.7160034	1962.736293	483.3887634
	3157.170098	497.2593994	3335.871416	741.4879761	2020.337213	367.0780945
	4029.824151	503.6458435	2826.248786	664.8956299	4953.986429	523.2390747
	4959.557707	540.7374878	3216.550981	645.4158936	5442.711093	559.3424072
	4097.470476	525.0829468	4376.386165	784.1495361	3957.025531	546.8471069
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	1931.247588	425.7374878	4944.48371	821.8763428	2566.67393	364.5552063
	1720.109868	461.011322	3340.404077	827.7608643	3263.28827	587.4381714
	2968.041538	587.4242554				
	1844.966915	292.0023804	4258.133072	493.9533386	4895.48902	455.2460022
	2025.756318	635.5109863	3171.508889	488.0149536	4623.833951	458.2843628
	4973.690395	679.6034546	2108.860311	241.5618896	4895.48902	455.2460022
	3220.729231	607.2470093	1445.945144	237.925415	1056.178877	240.9376984
	3385.265989	381.9732971	5077.500607	458.0847168	4142.301396	470.5297546
	1889.655767	472.7325439	4814.387662	489.1402893	1001.962131	241.5618896
	2783.882514	661.3166504	5539.256268	496.9952698	2052.015702	357.7977295
	1899.890021	286.92453	4010.438221	441.2325439	1890.189638	229.8616791
	4310.537296	427.3422241	6261.111639	506.8675842	2100.670769	249.2912903
	2196.539695	380.8634949	4281.526517	478.5939941	1918.043937	246.7303925
	1737.695091	351.6882935	1798.045026	319.5221558	1772.838524	256.9204102
	1987.903387	495.4725037	1392.28032	311.2037048	1580.144323	446.2995911
	2528.642845	365.263855	1990.613433	309.6186523	3659.687664	704.6670532
	1952.803463	346.239502	960.5453611	308.3846436	3788.573552	624.4852905
	3127.623881	420.7345886	2336.904518	306.4540405	2071.597714	341.2253418
	1754.65973	349.036499	3797.709912	450.3930054	3584.346001	654.4058228
2015	3012.426965	417.4532776	4114.225129	472.5580444	4363.751143	626.2175293
	2939.001166	409.9397888	3693.193049	503.5671692	4113.075956	624.8327026
	2366.144753	328.6063232	2095.760925	453.2653503	3119.189549	740.4251099
	3274.242539	395.7633362	2062.287493	295.2371521	2714.38893	478.6109009
	2245.861649	407.8927002	1717.463794	279.494873	2978.178397	471.1795959
	2560.655894	386.4118347	1574.855954	305.5751038	2619.738137	472.3110962
	2209.377204	382.1197205	2110.140801	317.710907	2943.607452	623.0389404
	3249.663519	396.2647705	4598.12659	459.6755981	4287.405122	684.1331177
	1241.374418	351.6882935	4918.385691	470.9379883	3888.764923	690.8480835
	1966.084569	495.4725037	4862.48426	456.0976563	3493.536337	521.1824951
	2731.186636	336.8255615	4563.879908	485.2520142	3033.102169	476.5257568
	3422.645807	423.4972534	2374.092596	466.73349	3766.134635	442.8790588
	4592.183054	437.4066162	2321.605057	333.5266418	3279.149289	446.8108521
	4919.958976	440.0608215	1786.035493	247.562851	1600.653277	341.5599365
	3198.645703	408.1442871	3108.194858	248.2897797	2697.044616	460.6797485
	2747.931701	397.3244019	2539.309688	452.1888733	2324.663637	454.6447449
	2912.708273	394.5899048	2502.284866	450.8648987	2767.957617	454.3171692

1029.644421	331.1760559	3109.749589	450.8648987	3031.483698	469.459198
1235.679226	330.6701355	3599.854761	546.5733032	2041.987847	471.4547729
1665.555378	336.0951538	2268.809229	307.8763123	2041.987847	471.4547729
2242.171578	342.4923096	2607.098382	469.662384	2826.587941	553.883606
1542.575675	333.9358826	2879.346308	472.0566101	3662.726335	590.4859619
1075.554159	333.5438843	4351.986733	490.5159607	3493.394932	511.4523621
4291.98732	636.6085815	3568.555382	626.3422241	3587.743223	535.5413208
2246.06474	495.1708984	2137.704344	490.4897461	3440.09798	703.3884888
3493.536337	521.1824951	2640.878059	533.7706299	4822.543457	680.147644
2470.604791	472.7546387	2870.558753	507.4889832	3255.103256	681.8660889
3070.101161	479.3640442	3974.827699	508.0019836	4487.660764	722.1955566
1940.610746	343.5487366	4271.833318	468.321167	2022.234715	464.9112244
2932.708963	327.708252	2185.310609	547.8240967	2127.185474	461.6578674
1782.680993	312.6291504	2284.938744	485.8886414	2022.234715	464.9112244
4093.00484	673.367981	3019.0663	561.8538208	1976.225334	321.7141113
4113.200963	680.4984741	4919.870627	672.7088013	1992.352976	321.6038513
3406.244029	741.4824219	2380.667958	572.1251221	3830.543873	510.3166504
3159.864817	561.8538208	2640.323877	571.1109009	2361.030854	518.1148682
4792.191157	642.8661499	3192.734087	573.366272	2571.930549	517.3681641
2453.785155	529.2006226	2287.258122	477.480011	2959.643464	515.5046387
3040.540357	606.4053345	4907.251576	653.5945435	4370.107368	624.8327026
3895.713053	684.5405884	5339.811606	664.5755615	3301.400542	737.949585
2657.825439	485.5749512	1528.473168	419.4890747	3589.957638	527.4078369
1993.567034	498.4719849	1828.220963	329.2684631		

Text S1: The workings of Machine Learning algorithms.

RF:

- (1) The grassland biomass is used as the output variable of the model, and the environmental variable is used as the input variable (attribute value) of the model to form the training data set D.
- (2) Using the Bootstrap method to resample the training sample set, randomly generate k training subsets D_k , and establish the corresponding k decision trees.
- (3) Randomly extract M features from the original features as the split feature set of nodes.
- (4) Train the training subset D_k , and make each regression tree stop growing after meeting the segmentation termination condition through the decision tree judgment and branch pruning rules, and finally combine all regression trees to form a random forest.
- (5) Calculate the average value of grassland biomass prediction according to the prediction results of k decision trees.

SVM:

The model training samples consist of a subset of positive samples ($y_i=1$) and a subset of negative samples ($y_i=-1$). The training goal is to find an optimal hyperplane and classify the samples accurately. Among them, the data points closest to the decision surface are called support vectors. As shown below. When the support vector machine is used to deal with the regression problem, firstly given the training sample set (x_i, y_i) , $i=1, 2, \dots, l$, there is a linear regression function:

$$y = w \cdot x + b, \quad (1)$$

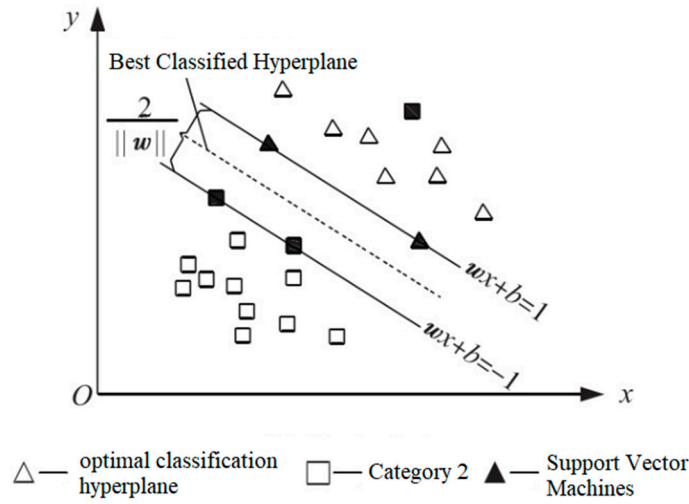
where w and b are the normal vector and intercept of the hyperplane, respectively.

Finding optimal parameters can be transformed into solving the following optimization conditional problems.

$$\begin{cases} \min \left[\frac{1}{2} \|w\|^2 + C \sum_{i=1}^l (\xi_i + \xi_i^*) \right] \\ \text{s.t.} \begin{cases} y_i - w \cdot x_i + b \leq \varepsilon + \xi_i \\ w \cdot x_i - y_i + b \leq \varepsilon + \xi_i^* \end{cases} \end{cases}, \quad (2)$$

In the formula, C is the penalty factor; ε is the regression accuracy, which is used to control the size of the error; $\xi_i (\geq 0)$, $\xi_i^* (\geq 0)$ are relaxation factors.

The Lagrange multiplier a_i is introduced, and the original problem can be changed to solve after transformation and solution:



$$\begin{aligned} \min & \left[\frac{1}{2} \sum_{i,j=1}^l (a_i - a_i^*)(a_j - a_j^*)(x_i, x_j) \right. \\ & \left. + \sum_{i=1}^l a_i^*(\varepsilon + y_i) + \sum_{i=1}^l a_i(\varepsilon - y_i) \right], \end{aligned} \quad (3)$$

$$\text{s.t.} \begin{cases} \sum_{i=1}^l (a_i - a_i^*) = 0 \\ a_i, a_i^* \in [0, C] \end{cases}. \quad (4)$$

GBDT:

(1) Initialize the weak learner, and calculate the decision tree with only 1 root node by initialization:

$$f_0(x) = \underset{c}{\operatorname{argmin}} \sum_{i=1}^N L(y_i, c) \quad (5)$$

$L(y_i, c)$ loss function, the number of N training samples, the i th sample in the y_i training sample set, the c loss function minimizes the constant value.

(2) Calculate the residual error: set the number of iterations $m=1, 2, \dots, M$, calculate the residual error for each training sample.

$$r_{im} = - \left[\frac{\partial L[y_i, f(x_i)]}{\partial f(x_i)} \right]_{f(x) = f_{m-1}(x)} \quad (6)$$

$f(x)$ objective function, i -th sample attribute of x_i , $f_{m-1}(x)$ $m-1$ -th decision tree.

- (3) Take the calculated residual value as the real value of the next training, and take the data (x_i, r_{im}) , $i=1, 2, \dots, N$ as the sample data for the next training, and get a tree with $j(j=1, 2, \dots, J)$ leaf nodes, and the leaf nodes are distributed in the leaf node area R_{mj} regression tree
- (4) Calculate the best fit value of the leaf area.

$$c_{mj} = \operatorname{argmin}_c \sum_{x_i \in R_{mj}} L[y_i, f_{m-1}(x_i + c)] \quad (7)$$

- (5) Update the strong learner.

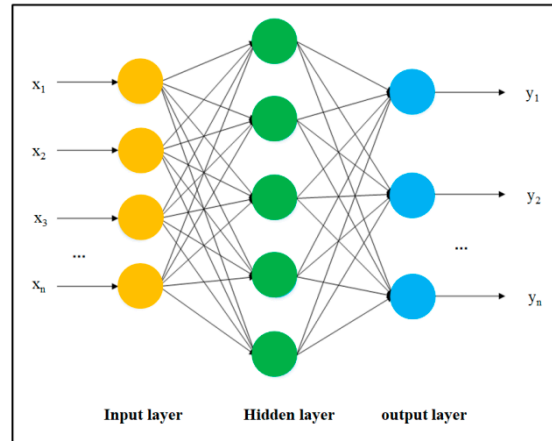
$$f_m(x) = f_{m-1}(x) + \sum_{j=1}^J c_{mj} I(x \in R_{mj}) \quad (8)$$

- (6) Accumulate to obtain the final regression tree.

$$F(x) = \sum_{m=1}^M \sum_{j=1}^J c_{mj} I(x \in R_{mj}) \quad (9)$$

BP:

BP network consists of input layer, hidden layer and output layer. Taking the three-layer perceptron as an example, its structure is shown in the figure.



output layer error:

$$E = \frac{1}{2} (s - Z)^2 = \frac{1}{2} \sum_{k=1}^l (s_k - Z_k)^2 \quad (10)$$

hidden layer error:

$$E = \frac{1}{2} \sum_{k=1}^l (s_k - f(net_k))^2 = \frac{1}{2} \sum_{k=1}^l \left(s_k - f \left(\sum_{j=1}^m w_{kj} y_j \right) \right)^2 \quad (11)$$

input layer error:

$$\begin{aligned}
E &= \frac{1}{2} \sum_{k=1}^l \left(s_k - f \left[\sum_{j=0}^m w_{jk} f(\text{net}_j) \right] \right)^2 \\
&= \frac{1}{2} \sum_{k=1}^l \left(s_k - f \left[\sum_{j=0}^m w_{jk} f \left(\sum_{i=1}^n v_{ij} x_i \right) \right] \right)^2
\end{aligned} \tag{12}$$

s is the actual value; Z is the predicted value; then $s-Z$ is the error; w is the weight of a node; y is the output of a node; m neurons

The sum of errors of 1 to 1 output layer nodes is the overall error of the output layer of the neural network.

The output layer error is forwarded back, and the output layer node performs the transformation of the $f(\text{net}_k)$ activation function, then $Z=f(\text{net}_k)$ is brought into the formula (10) to obtain the formula (11).

In the process of backpropagation, according to the linear change of neurons and the transformation of activation function, it can be obtained:

$$Z_k = f(\text{net}_k) = f \left(\sum_{j=1}^m w_{jk} y_j \right) = f \left[\sum_{j=0}^m w_{jk} f(\text{net}_j) \right] = f \left[\sum_{j=0}^m w_{jk} f \left(\sum_{i=1}^n v_{ij} x_i \right) \right] \tag{13}$$

In order to make the error E smaller and smaller, the stochastic gradient descent algorithm can be used to solve the w and v , that is, let the obtained w and v minimize the error E , and η is the fixed learning rate given during initialization.

$$\Delta w_{jk} = -\eta \frac{\partial E}{\partial w_{jk}} \quad j = 0, 1, 2, \dots, m; \quad k = 1, 2, \dots, l \tag{14}$$

$$\Delta v_{ij} = -\eta \frac{\partial E}{\partial v_{ij}} \quad i = 0, 1, 2, \dots, n; \quad j = 1, 2, \dots, m \tag{15}$$

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